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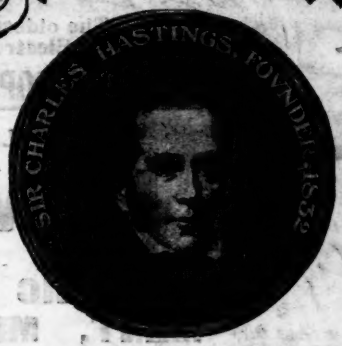

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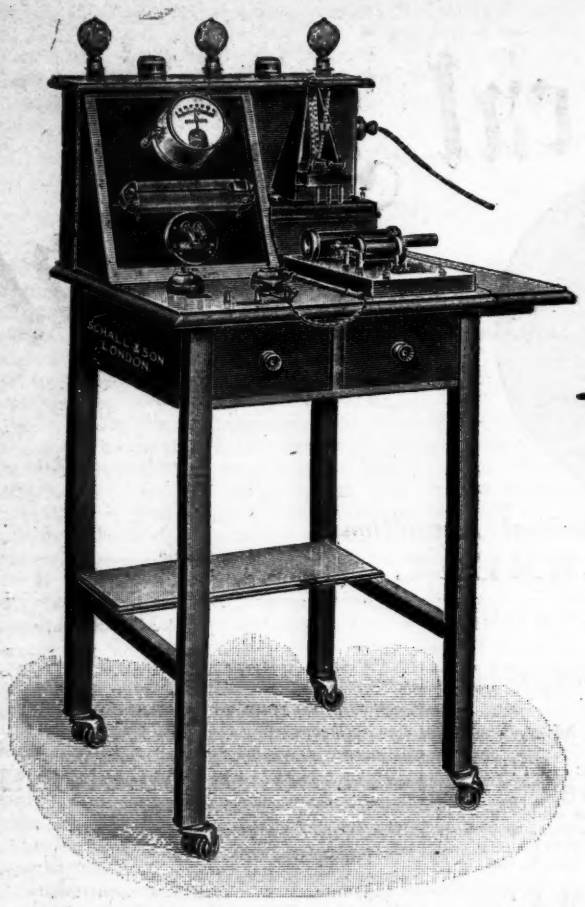

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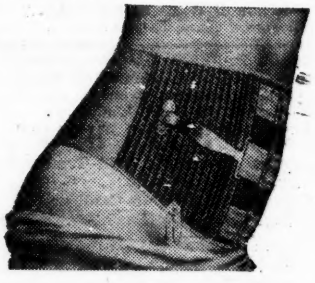

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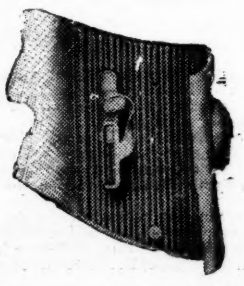

MEASUREMENT FORMS AND FULL PARTICULARS ON APPLICATION.

ON THE NATURE OF RABIES AND ANTIRABIC TREATMENT.

BY

SIR DAVID SEMPLE, M.D., D.Sc., D.P.H.,

LIEUT.-COLONEL R.A.M.C.(R).,

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I. INTRODUCTION.

THE present outbreak of rabies in England is sufficient justification for the publication of an article on the salient points connected with rabies and antirabic treatment.

In this article I purpose to deal with the subject mainly from a practical point of view, so that whatever information it contains may be available in giving practical advice and prophylactic treatment to those bitten or infected by rabid animals. With this object it is not necessary to enter into every detail connected with rabies; neither is it necessary to give a description of the symptoms of rabies in dogs or hydrophobia in man, as these subjects are fully dealt with in the textbooks.

The fact that the prevention of rabies and hydrophobia is, comparatively speaking, easy of accomplishment in island countries like the British Isles, and that cure or recovery when the disease has become developed has, as far as we know, never taken place, adds to the importance of a dissemination of knowledge on the subject. The truth of the saying that "prevention is better than cure" is nowhere better exemplified than in rabies.

"Rabies" is the term used when animals suffer from the disease, and "hydrophobia" when it has been communicated to man. At present there is a tendency to apply the term "rabies" to man and animals rather than to make a misleading distinction by using two names; besides, the term "hydrophobia" conveys a wrong impression of the disease in man; the dread of water is only in evidence when the patient attempts to swallow water or any other fluid, owing to the fact that such attempts bring on paroxysmal spasms of the muscles involved in swallowing; attempts to swallow solids act in the same way.

In Pasteur's prophylactic treatment of persons infected by rabid animals, we speak of it as "antirabic treatment." A dog or other animal we speak of as "rabid," and sometimes as "mad." The term "mad" applied to some animals, or to man, would probably convey a different meaning altogether. For example, "mad bull" or "madman" would not suggest the condition being due to rabies; whereas in the case of the dog, cat, jackal, or wolf it would suggest rabies.

The point is, that whether we speak of the disease as rabies in animals or hydrophobia in man, the cause is the same in both cases; and on this account it would perhaps be better to use the terms "rabies" and "rabid"—words more suggestive of the cause and condition in man and animals. The French use the term *la rage* for man and animals, and speak of "*rage du chien*," "*rage de l'homme*," etc.

II. THE NATURE AND LOCALIZATION OF RABIES VIRUS.

All warm-blooded animals are susceptible to rabies. When the disease is referred to in the British Isles, in 99 cases out of 100 it means an infection of dogs, but we have also to reckon with cats, horses, cattle, foxes, deer, pigs, and sheep.

In some parts of the continent of Europe (especially in Russia) wolves are an important factor in keeping up the disease, and in India and other Asiatic countries in addition to wolves we have jackals, monkeys, and other wild animals, as well as numerous ownerless dogs. For the practical purposes of this article it will suffice to confine our attention to what happens when dogs are infected with rabies, as they are the big outstanding source from which the disease is kept up in all countries, and practically the only source as far as the British Isles are concerned.

Rabies is a specific infectious disease, the cause of which has not yet been discovered. The saliva of man and animals suffering from rabies contains the infective agent; hence the danger of bites from rabid animals, or of their saliva coming in contact (directly or indirectly) with wounds, scratches, or abrasions. Infection cannot take place through the unbroken skin, but it may take place through a mucous membrane, injured or uninjured.

In addition to being present in the saliva—which means that it is present in the salivary glands—infection is always present in the brain, medulla, spinal cord, cerebro-spinal fluid, and large nerves of man and animals suffering from rabies. It has been found in the pancreas and mammary glands, and, I believe, also in the suprarenal capsules and spleen in some cases of rabies. It is a disputed point whether the virus has ever been found in the blood stream. I have inoculated many rabbits subdurally with blood taken from animals suffering from rabies, and also from cases of hydrophobia, and the results have invariably been negative. Pasteur's experiments with the blood also gave negative results. Recent experiments by Remlinger,[1] which confirm similar facts published by Konradi, seem to prove that placental transmission can occur.

The saliva of a dog may be infective for as long as five days, and in a few cases it has been found to be infective for six to seven days before any outward symptoms of rabies developed. These are points which should be taken into consideration in giving or refusing antirabic treatment to persons bitten or licked on scratches or abrasions by dogs apparently healthy at the time, but which later developed symptoms of rabies.

Pasteur in one of his early communications laid stress on the early infection of the salivary glands in dogs about to become rabid; he thought the explanation might be that the virus reached these glands from the nerve centres by way of the nerves which supply them.

"Virus" is a convenient term to use in connexion with any disease-producing material about which we know little or nothing.

Rabies virus we know is present in the tissues and localities I have already mentioned when man or animals suffer from rabies; material from any of these sources when inoculated into animals is capable of conveying the disease. We also know that it is very sensitive to heat; a temperature of 50° C. is sufficient to destroy it in fifteen minutes; it remains active for months in neutral glycerin, and for a considerable time at freezing temperature. The chemical bactericidal agents generally in use act injuriously on rabies virus.

In some animals it is more virulent than in others; in rabbits, for instance, after a series of passages from animal to animal, it takes on its most virulent form, and then remains at a fixed virulence; in this condition it is known as "Pasteur's fixed virus," or "*virus fixé*"; on the other hand, its virulence is diminished when a series of passages are made through monkeys.

Advantage is taken of its fixed virulence in rabbits, in the preparation of rabies virus of a fixed strength, or, in other words, "rabies vaccine." It is a filter-passing virus as far as Berkefeld filters and filters of a medium porosity are concerned, but a very fine porcelain filter prevents its passage.

Up to the present all attempts to grow it on artificial media or to stain and demonstrate it under the microscope have not been accepted as successful; on this account, when preparing a vaccine for antirabic treatment, we are obliged to have recourse to the nerve centres of rabbits which have succumbed to rabies after inoculation with fixed virus, where it is found in sufficient quantity and free from contamination.

Whether the bodies found in the brain and medulla in cases of rabies, and generally known as "Negri bodies," are the cause of the disease, or only the result of cellular changes or alterations brought about by the rabies virus, has not yet been finally decided; the balance of opinion inclines to the view that they are cellular changes brought about by the virus. These bodies, which are described and figured in bacteriological textbooks, are found in the brain and medulla in a very high percentage of rabid dogs, possibly in 95 per cent. or more; they are also found in the human brain in cases of hydrophobia, but I am not aware that they have ever been found in the salivary glands or saliva of man or animals suffering from rabies. They are most easily found in the cells of the cornu ammonis of the hippocampus major, or in the Purkinje cells of the cerebellum, in sizes varying from 25 μ to minute dots which are just visible when stained and looked at under a

magnification of 1,000 diameters. Only the smallest of these bodies could be looked upon as "filter passers."

Their presence in marked numbers in the brain of a dog or other animal suspected of rabies is diagnostic of the disease; on the other hand, they may be absent in the very early stages of rabies, or possibly so small and few in numbers as not to be found without great difficulty. Bodies indistinguishable from Negri bodies have been found in the brain cells and fascia dentata in conditions other than rabies. Harvey and Acton,[2] experimenting on healthy guinea-pigs with Russell's viper venom, living *pyocyaneus* emulsion, and the brain matter of a healthy dog which had been preserved in glycerin for seventy-two hours, found bodies indistinguishable from Negri bodies in the brain cells and fascia dentata of a number of the animals experimented on. They quote Babes as having found bodies very analogous to Negri bodies in the spinal ganglion cells of three cases dying from arsenical poisoning; and Pace as having found Negri-like bodies in three persons who died of old age, cerebral embolism, and aortic disease respectively. These authors are of the opinion that

> Negri bodies are not truly specific of rabies; at the same time, we must state that in none of the above experiments have the Negri bodies been either so numerous or so large as those seen in rabies. As far as these experiments go we should feel inclined to assert—specificity apart—there is undoubtedly a very high correlation between the presence of numerous Negri bodies and rabies. Thus their presence forms a valuable, if not absolute certain, test for rabies. If they are few in numbers or absent no definite conclusion can be drawn.

The virus of the dog, jackal, or wolf is generally referred to as "street virus." This virus, when inoculated subdurally on to a rabbit's or dog's brain, has an incubation period of about fourteen days; in some cases it may be a day or two more or less. When carried on from rabbit to rabbit (using the brain matter or medulla) the virus increases in virulence and the incubation period diminishes until it reaches a fixed period of from six and a half to seven days for these animals; this is known as "fixed virus" (Pasteur's *virus fixé*). The number of passages required to obtain this fixed virulence for the rabbit may vary from twenty or thirty to as many as fifty. "Fixed virus" treated in various ways is used for immunizing persons bitten by rabid animals, or, in other words, for antirabic treatment. It will only be possible to fill in the gaps in our knowledge about rabies virus when its isolation and growth in pure cultures outside the animal tissues has been accomplished.

III. Rabies in Dogs.

Typical cases of rabies in dogs have been so often and fully described by veterinary authorities that there is no necessity for me to chronicle the many and varied symptoms in rabid dogs,* but it is important to remember that rabies in dogs is not always typical.

In all animals susceptible to rabies the disease manifests itself in one of two forms—namely, "furious," or delirious rabies, and "dumb," or paralytic rabies. In rabbits (with rare exceptions) it assumes the paralytic form, but in dogs and other animals the majority of cases are of the furious form. Paralysis, exhaustion, and asphyxia are the closing symptoms in all forms of rabies.

In dogs, when it assumes the paralytic form, the predominant symptoms are muscular weakness and depression, and the animal shows no tendency to bite. This form is sometimes mistaken for distemper; the lower jaw drops, saliva dribbles from the mouth, and the animal is unable to swallow—a symptom which sometimes gives rise to the suspicion of a bone in the dog's throat. I have known more than a dozen cases of infection of Europeans in India by scratching their hands on the teeth of dogs suffering from dumb rabies when searching for a bone in their throat. At other times the disease at the outset is masked and takes on the form of restlessness and a disinclination for food, and no tendency is shown to bite until a later period, and sometimes not at all. In some cases the animal may remain tame and unaggressive until the end, unless irritated or interfered with. These are the cases in which infection by licks on wounds or abrasions of the hands or face is likely to occur.

* A clear and graphic account of the subject is to be found in Mr. Frank Karslake's monograph on *Rabies and Hydrophobia: their Cause and Prevention*, published by W. and G. Foyle, 121 and 123, Charing Cross Road, London, W.C.2; 1919; price 1s.

IV. Mode of Infection.

The virus of rabies implanted in the wound by the bite of a rabid animal, or by the saliva coming in contact with wounds, scratches, or abrasions, reaches the nerve centres (brain and spinal cord) by growing along the nerves from the seat of infection. On reaching the nerve centres a period of fourteen days or thereabouts elapses before the first symptoms set in.

The period taken by the virus in reaching the nerve centres is variable, and depends on many factors, such as individual susceptibility, whether few or many or large nerves have been infected, amount of virus implanted in the wound; and this, again, would depend on the number, depth, and seat of the bites, whether through clothing, etc. When bites are on the head, face, or neck, the virus has only a short distance to grow along the nerves before reaching the brain; on other parts of the body the distance is greater according to the seat of the bites.

The object aimed at in antirabic treatment is to confer an active immunity against rabies before the virus of the animal which inflicted the bite reaches the nerve centres; when this has been accomplished the failures rarely exceed 0.5 or 0.8 per cent., and they may be even less than 0.5 per cent. On the other hand, should the virus have already reached the nerve centres by the time the patient has arrived for treatment, there will be no symptoms to show that this has taken place, but hydrophobia will set in fourteen days afterwards, irrespective of whether he receives treatment or not. Again, to take another example: should the virus reach the brain one day before treatment is completed, the patient will develop hydrophobia thirteen or fourteen days afterwards, and during this interval he will probably not have a single symptom to show that the object of treatment was defeated one day before completion.

In order to follow the meaning of the examples I have given it is necessary to remember:

1. That the incubation period of the virus of a rabid dog ("street virus") is fourteen days or thereabouts when inoculated on to the surface of a dog's or rabbit's brain.
2. That when rabies is inoculated on to the surface of an animal's brain, no subsequent antirabic treatment will prevent the onset of the disease, and presumably this fact would apply in the case of man.
3. That antirabic treatment extends over a period of from fourteen to twenty-one days, according as to whether light, medium, or intensive treatment is carried out.

As the time occupied by the virus in reaching the nerve centres is variable, depending on the factors I have already mentioned, the importance of early treatment is evident. By treatment I mean local treatment of the seat of infection and subsequent antirabic treatment.

V. Treatment of Bites by Rabid Animals.

When a person is bitten or infected by a rabid animal it is most important that the wounds or seat of infection should receive early attention, with the object of getting rid of as much of the virus as possible.

Proper attention to the wound means cauterization at the earliest possible moment. Undiluted carbolic acid is the most efficient and least painful application; it should be well swabbed into the wound, and washed out with water immediately afterwards so as to prevent destruction of tissues. Carbolic acid has the advantage of penetrating into the crevices of a wound, and is not prevented from doing so by fatty tissue. Crude phenol also answers very well, and so does undiluted izal, lysol, or somewhat similar preparations, and iodine. Caustic soda, caustic potash, or silver nitrate are fairly good when well rubbed into the recesses of the wound, but they cause considerable pain. Nitric acid and the red-hot iron are barbarous methods and should never be used.

Cauterization, when thoroughly carried out within half an hour of the infliction of the bite, will prevent hydrophobia in many cases, but not in all. It is reputed to do some good up to eight or ten hours, but it is probably not much good after three to four hours, and is certainly no good after twenty-four hours.

When the tissues around the wound are excised there is always the danger of the virus in the original wound infecting the larger wound made by the excision. When a

person sucks the wound there is the possibility of the virus infecting the lips or gums. If there be nothing available at hand for cauterization, it is better to wash the wound with any antiseptic lotion, or even with hot or cold water, than to do nothing at all. When washing is done early and thoroughly a certain amount of the virus is washed out. It will be gathered from what I have said that cauterization or other forms of local treatment cannot be relied upon to prevent infection in all cases, but when carried out early and efficiently the virus in the wound may be diminished, the chances of infection diminished, the incubation period prolonged, and treatment made easier and more certain of success. This is the best that can be said for any form of local treatment.

VI. Precautions when a Person is Bitten by an Apparently Healthy Dog in a Rabies-infected Area or Country.

In any rabies-infected area or country bites from apparently healthy dogs should receive the same local treatment as laid down for the bites from rabid dogs, for the following reasons:

The saliva of a dog about to become rabid is infective for a few days before it shows any apparent symptoms of the disease, and consequently during this period its bites or licks on scratches or abrasions are capable of transmitting rabies. In probably all cases the saliva is infective for two to three days, but it may be infective for five to six days, and in some cases even longer, but I am not aware that it has ever been proved to be infective for nine or ten days before the disease declared itself by the manifestation of outward and apparent symptoms, although longer periods (thirteen and fourteen days) have been mentioned.

The practical application of these facts, in addition to the local treatment recommended, suggests the following precautions:

1. The dog should not be destroyed, but should be kept under control and close observation for a period of ten days from the date of the bite, and in the event of any symptoms of ill health or departure from its normal habits, a report should be made to the police at once. If at the end of the ten days' observation period the dog is still healthy and free from any symptoms of rabies, the person bitten has nothing to fear as regards infection; even though the animal should develop rabies on the eleventh day or on any subsequent date, no antirabic treatment would be required.

2. If the dog showed signs of rabies within ten days from the date of inflicting the bite, the person bitten should receive antirabic treatment as soon as possible after the condition of the dog had declared itself.

3. A person severely bitten on the head, face, or neck would not be justified in waiting ten days to know whether the animal was infective or not. A delay of ten days, or even four to five days, in a case of that kind might be disastrous, as it might then be too late for successful treatment; the safest course to adopt in such cases would be to commence antirabic treatment at once, and as soon as it became evident that the dog was not infective leave it off. In a rabies-infected district a person bitten by a stray dog which subsequently disappeared and was not again seen or heard of should receive antirabic treatment as a precautionary measure.

4. It is evident that in a rabies-infected area it would be a mistake to destroy a healthy looking dog immediately after it had bitten any one, because then all information regarding his condition would be lost unless the carcass or a portion of the brain was sent to a laboratory for experimental tests, which would mean a delay of from four to five days, up to a period of three weeks, or possibly longer, according as to whether Negri bodies were looked for and found, or the inoculation of an animal carried out.

VII. Incubation Period of Rabies.

Rabies virus only gives rise to rabies when it multiplies in the nerve centres. The variable factor in the incubation period is the time taken by the virus in reaching the nerve centres by the nerve paths from the seat of infection; once it reaches the nerve centres the period is limited to fourteen days or thereabouts.

It will be seen that the earliest period at which a man or animal bitten by a rabid animal could show any symptoms of hydrophobia or rabies would be fourteen days after being bitten; and it could only be fourteen days provided the rabid animal implanted the virus on to the surface of the brain, which is scarcely conceivable. The disease manifests itself oftenest in the course of the second or third month after infection, less frequently after the third month, and rarely after the sixth month. The nearer to the brain the wounds are situated, the shorter the incubation period; hence the serious importance attached to bites on the head, face, or neck, especially when they are multiple, severe, and lacerated. Multiple and deep bites through the exposed skin on other parts of the body where nerves are numerous may have an incubation period not much longer than a similar class of wounds on the head, face, or neck.

When the bites are slight, and only a small amount of virus implanted in the wounds, the incubation period may be prolonged up to five, six, or even nine months, and possibly longer. Individual susceptibility and the early and vigorous treatment of the wounds are also factors in the incubation period. These facts also apply to dogs and other animals when bitten by rabid animals.

It is quite possible that the bite from a dog which was apparently healthy, and which remained healthy, might be blamed for giving rise to hydrophobia in the person bitten. This might happen in the following way: A person with slight scratches or abrasions, when handling a dog with paralytic rabies mistaken for distemper, might easily get infected with the saliva and think nothing more about it, as the dog was thought to have had distemper. Or he might be licked on the hands by an apparently healthy dog whose saliva was infective before showing symptoms of rabies, and not hear anything more about the animal. In the event of his contracting hydrophobia from either source the incubation period would (in all probability) be prolonged. In the meantime he gets bitten by a dog which is apparently healthy and which remains healthy; a few weeks afterwards he contracts hydrophobia. The verdict of most people in a case of that kind would be, "A case of hydrophobia from the bite of a healthy dog." Or suppose the hands got infected in the way I have described, and the subsequent bite from a healthy dog not to have happened, the verdict might be, "A case of hydrophobia without any record of infection." Most cases of alleged very prolonged incubation periods in hydrophobia can be explained by subsequent infections which have not been noticed.

VIII. Chances of Infection when Bitten by Rabid Animals.

It is very difficult to get reliable statistical evidence, partly because some of the animals which inflicted the bites may not have been rabid; in other cases the observations of persons bitten may not have been carried out for a long enough period. The percentages given vary from 16 per cent. to over 60 per cent. I take it that the truth lies somewhere between these two extremes.

When the bites are inflicted through the exposed skin, and are severe and multiple, especially on the head and face or neck, the percentage of infections will be very high, possibly 60 per cent. or more. Bites on the same localities, but single and slight, will give rise to a much lower percentage of infections, and bites through the clothing (unless very severe and the animal has held on and bitten savagely) will give a lower percentage still, and may not be over 16 per cent.

Local treatment has also to be taken into consideration, and so has the biting animal. Wolves and jackals have longer teeth than dogs; they bite more savagely, and by a series of successive snaps, and often spring at the face and neck; besides, the fact that a stray jackal or wolf approaches a human being is almost conclusive proof that the animal is rabid. The percentage of infections following the bites of these animals is very high.

The percentage of infections in a cold or temperate climate is lower than in tropical climates. When the body is only partially covered with a thin cotton garment leaving the legs and arms exposed, there is very little protection against the bites of rabid animals, especially wolves or jackals. I have known of an instance in which a rabid dog bit 15 Indians in a village in the Punjab; 8 came for treatment to the Pasteur Institute, Kasauli, and 7 remained in their village; within three months 5 out of the 7 who remained behind died from hydrophobia; the 8 treated cases remained well. In another instance a dog

bit three Indians in Calcutta; one came to Kasauli for treatment and the other two remained in Calcutta; the treated patient remained well, but the other two died from hydrophobia within two months.

I give these two instances as illustrative of the want of protection afforded by scanty clothing in tropical climates. On adding both sets of figures we get 18 persons bitten by rabid dogs—9 received antirabic treatment and remained well, and of the remaining 9 who were not treated, 7 died from hydrophobia within three months. It would be a mistake to reason from these few cases that 7 out of 9 persons bitten by rabid dogs in Europe, and not treated, would contract hydrophobia; probably not more than 2 would.

It would serve no useful purpose to quote an array of statistics which vary from 16 per cent. to over 60 per cent., but it may be of interest to refer to three sets of figures compiled by the French before Pasteur's antirabic treatment came into operation.

Renault[3] gives the percentage of deaths as being one-third of the total number bitten. Bouley[3] and the Comité d'Hygiène collected 383 cases between 1862 and 1872 with 180 deaths = 47 per cent.

Comité d'Hygiène,[3] Years 1862–72.

	No.	Deaths.	Percentage.
Bites on the face	50	44	88.0
Bites on the hands	113	76	67.25
Bites on the trunk	22	7	31.81
Bites on the arms	40	12	30.0
Bites on the legs	33	7	21.21
Multiple bites (face, hands, etc.) ...	8	6	
Total	266	152	

It is not stated whether the bites on the trunk, arms, and legs were through the clothing, or whether the wounds received local treatment, or whether they were light or severe. Presumably the bites on the trunk, arms, and legs were through clothing, and it will be noticed that the percentage of deaths in these cases is much lower than in the hands and face cases.

Suzor says that while these figures are not an exact expression of facts, they are of great use in indicating in what direction the truth lies.

IX. Rabies in Man (Hydrophobia).

When rabies has developed in man it is generally referred to as hydrophobia. A clear description of a very typical case is given in the BRITISH MEDICAL JOURNAL of June 28th, 1919, pp. 795–796, by Sir P. J. Freyer, K.C.B., Colonel I.M.S.(R.). I have seen many cases in India to which this description would apply in every detail, except in regard to the incubation period. An incubation period of eighteen months is exceptional, but there is no denying the fact that it is possible.

There are, however, some cases which might be referred to as atypical, and which conform more or less to the paralytic form of rabies in animals. Gradually increasing paralysis takes the place of the paroxysms seen in typical cases, and sooner or later the muscles of respiration and the heart are involved. Death in these cases comes on more gradually than in those in which there is excitement and paroxysms, and the duration of the illness may be a day or two longer.

In India I have seen several cases amongst Indians in which the symptoms were so masked that a casual observer might well mistake them for an ordinary attack of malaria. The patients covered themselves up in bed, refused food and drink, and implored to be left alone; exposure by removal of the blankets brought on slight paroxysms, which soon disappeared when the blankets were replaced; the expression on the face differed from what we find in malaria, and they were unable to swallow any fluids. I have only known the disease to assume this form in Indians who were weak, anaemic, and debilitated.

There are a few early symptoms which I have never known to be absent—namely, an increase of temperature, a feeling of unrest, and an appearance of excitement about the eyes and face, and, most diagnostic of all, inability to swallow fluids. At this stage patients may ask why they are unable to swallow, stating at the same time that they are feeling quite well.

Pain in the region of the bite, or in the limb on which it is situated, may or may not be present, but is probably more often present. I have known it to be complained of in cases severely bitten and who successfully underwent a course of antirabic treatment and remained well.

It has not been established that recovery ever takes place in rabies of man or animals. Cases of alleged cure or recovery in man are accounted for by a simulation of hydrophobia known as "spurious hydrophobia," "lyssaphobia," "pseudo-hydrophobia," "hysterical hydrophobia," and possibly other names. I have only seen one case of this kind.†

When I was Director of the Pasteur Institute of India, Kasauli, a Eurasian medical student was bitten by a rabid dog on May 15th. The bites were deep, at the base of the left thumb. He came under antirabic treatment three days after he was bitten. On May 22nd, seven days after the bite, he suddenly complained of pain in the throat and chest, difficulty in swallowing and speaking, became delirious and suddenly ran out of the room, saw a dog on the road and immediately ran back in a state of panic. Two hours later his whole aspect was one of extreme terror—eyes widely open; the pupils were dilated and the breathing rapid and laborious; temperature 101.8°, and pulse 120; answered questions with difficulty; complained of great pain in the throat, and after speaking a word or two would roll back on the bed, grasping at his throat with the appearance of suffering the acutest agony from pharyngeal spasms. He constantly asked for water, and when it was brought to him attempts to drink brought on violent pharyngeal spasms, and he dashed the cup away and rolled back on the bed clutching at his throat and groaning. Altogether he was in a condition which might have been mistaken for true hydrophobia.

It was noticed that the examination of his throat with the aid of a tongue depressor could be made with ease and failed to bring on any pharyngeal spasms, an almost impossible and cruel proceeding in a case of true hydrophobia. It was also noticed that the pharyngeal spasms did not spread into one of tetanoid spasms of the respiratory muscles such as we see in the height of the symptoms in hydrophobia.

There was also the fact that the attack had developed with unheard of rapidity, and without any premonitory symptoms, so that in two hours from the commencement he was in the condition somewhat resembling that of a true hydrophobia case on the second or third day of his illness. The most important source of information, and one which threw a flood of light on the diagnosis, was derived from the fact that he had been bitten only seven days previously, and hydrophobia contracted from a bite at that time was out of the question. Then came the difficulty of excluding an anterior infection. There was no history of such an infection, but there was a bare possibility of it from the fact that the patient had within the last year seen and helped to attend three cases of hydrophobia in the hospital where he was a student. Taking all the facts and symptoms into consideration, we diagnosed the case as one of "spurious hydrophobia," and subsequent events proved that this was correct. The patient was given bromide and chloral, kept in bed for a day, when his symptoms gradually disappeared, and the day after his antirabic treatment was continued and completed in due course, and without any untoward incident.

Some two or three weeks after he returned to his home I had a telegram from his medical attendant informing me that "Mr. —— has contracted hydrophobia; can anything be done?" I replied by telegram, explaining what had happened in Kasauli, and a few days afterwards I had a letter from the medical attendant, explaining that he had made a mistake in diagnosing the case, and that his patient was now quite well and at his work.

I give this case as an example of what might be mistaken for hydrophobia and recovery.

In most cases of hydrophobia, towards the end of the disease, getting rid of the ropy saliva from the mouth and throat is a troublesome symptom, and attendants on patients should be warned about its infectivity. It gets on to the patient's hands, and when in a paroxysm he may scratch his attendants, or cough or expectorate on to their faces. These are possible methods of infection which would suggest themselves to any medical man attending a case.

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(To be continued.)

† Described in the *Lancet*, July 18th, 1903, by Captain W. S. Harrison, who was then my assistant.

THE ETIOLOGY OF DISORDERED ACTION OF THE HEART.

A REPORT ON 7,803 CASES.

BY

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THIS paper is an attempt to analyse and draw some conclusion from the study of 7,803 cases admitted as disordered action of the heart (D.A.H.) or valvular disease of the heart (V.D.H.) to No. 1 Convalescent Dépôt. It covers a period of exactly two years (November 16th, 1916, to November 16th, 1918). This was the first heart centre to be started in France. To Colonel Hume is due the credit of inaugurating this centre and the others which subsequently were established at other bases.

A large amount of work has been done on the so-called D.A.H. cases and a great deal written about them. Colonel Hume published a paper on 1,000 cases and dealt fully with many aspects, which it will be unnecessary to deal with further. The study of a larger number and extending over a long period, however, enables me to bring out certain points which it was impossible to make with a smaller number, and it is these points that I have attempted to elucidate further.

One of the main objects of this analysis is an effort to form some sort of opinion on the apparent causes of D.A.H. As the figures cover a period of two years I have for convenience divided them into four periods of six months. This has the advantage also of showing how the conditions of warfare altered during the two years owing to the use of gas, the increase of trench fever, and the effect of strain on the individual.

Not the least important part of the work was the first sifting of the cases. A careful examination was made on admission of all cases sent as D.A.H. or V.D.H., and where necessary the alteration of diagnosis was made, and cases of "other disease" were transferred to other medical divisions. The following tables show the results divided into the four periods of six months.

TABLE I.—*Diagnosis sent in 7,803 Cases, showing Number and Percentage for Each Period of Six Months.*

	First 6 mths.		Second 6 mths.		Third 6 mths.		Fourth 6 mths.		Total.	
	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.
D.A.H.... ...	1274	81.1	1784	92.9	1891	91.4	2019	90.0	6968	89.2
V.D.H.... ...	297	18.9	137	7.1	179	8.6	222	10.0	835	10.8
	1571	100	1921	100	2070	100	2241	100	7803	100

TABLE II.—*Actual Diagnosis in 7,803 Cases.*

	First 6 mths.		Second 6 mths.		Third 6 mths.		Fourth 6 mths.		Total.	
	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.
D.A.H.... ...	1212	77.1	1687	87.8	1765	85.0	1951	87.0	6615	84.7
V.D.H.... ...	91	5.8	72	3.8	72	3.5	69	3.0	304	3.8
Other diseases	268	17.1	162	8.4	233	11.5	221	10.0	884	11.5
	1571	100	1921	100	2070	100	2241	100	7803	100

Tables I and II show a very large error in the diagnosis of the organic lesions. There were 835—that is, 10.8 per cent.—admitted as V.D.H.; but on examination this number was reduced to 304—that is, 3.8 per cent. The error is in fact larger than this, as many of the actual organic lesions had been diagnosed as D.A.H., for out of the total of 304 cases admitted as V.D.H. there were only 182 cases in reality, yet, as the total number of V.D.H. was 304, it shows that 122 had been wrongly diagnosed as D.A.H. The following table shows this error.

TABLE III.—*Diagnosis sent in the 304 Cases of Actual V.D.H.*

	First 6 mths.		Second 6 mths.		Third 6 mths.		Fourth 6 mths.		Total.	
	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.	No.	P.c.
V.D.H.... ...	54	59.3	49	68.0	23	32.0	46	33.3	172	56 5
D.A.H.... ...	37	40.7	23	32.0	49	68.0	23	66.6	132	43.5
	91	100	72	100	72	100	69	100	304	100

Table III shows that out of a total of 304 cases of V.D.H. 132 of them had been diagnosed as D.A.H.; that is to say, nearly half of them had been missed.

These errors in diagnosis are important, not so much, perhaps, because early lesions were missed, but in correcting the wrong diagnosis of V.D.H., for when once diagnosed as such the case is passed from one hospital to another, no medical officer taking upon himself the responsibility of altering the diagnosis. Further, the patient learns what its diagnosis is, and it becomes a matter of the greatest difficulty to persuade him that he is suffering from no such thing.

TABLE IV.—"*V.D.H.*" *and Rheumatic Fever.*

	No.	Rh. F.	No Rh. F.
Mitral regurgitation	91	53	38
Mitral stenosis	88	55	33
Mitral regurgitation and stenosis ...	26	18	8
Aortic regurgitation	59	24	35
Aortic regurgitation and mitral stenosis	24	16	8
Aortic stenosis	1	1	0
Total	289	167 (57.8%)	122 (42.2%)

Of 289 cases of valvular disease, 57.8 per cent. gave a history of rheumatic fever; the criterion of this was a history of swollen joints and confinement to bed for at least four weeks. In addition there were 10 men with paroxysmal tachycardia, none of whom gave a history of rheumatic fever, 4 cases of congenital defects of the heart, and one case of infective endocarditis.

A large number of the cases of organic lesions had stood many months of hardship and strain in the front line. Of the 304 cases, 181 complained of symptoms before enlistment, and 123 had none until after varying periods of service.

TABLE V.—*Onset of Symptoms.*

	First 6 months.		Second 6 months.		Third 6 months.		Fourth 6 months.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Before enlistment ...	762	58.5	797	45.3	708	38.5	624	30.9
After enlistment ...	541	41.5	962	54.7	1,129	61.5	1,396	69.1

Table V shows that there was a marked decrease in each successive six months in the number who gave a history of symptoms in civil life, with a corresponding marked increase of those who developed them after enlistment. This may be attributed partly to the effect of the strain of active service, and partly to the fact that those enlisting during the last two years were of an inferior constitution and so broke down sooner under the conditions of warfare.

Causation.

To attempt to ascertain the main causes instrumental in bringing about the symptoms of D.A.H. is one of the chief objects of this analysis. D.A.H. is not a clinical entity, and the factors which go to produce the symptoms are numerous. Of necessity this cannot be an accurate analysis, as we had to be guided largely by the history given by the patient. Further, it was difficult, and in

some cases impossible, to know to which of several factors the symptoms should be ascribed. For instance, a man after a considerable time in the front line might get a dose of gas which incapacitated him for a day or two only, and might afterwards develop persistent symptoms of D.A.H. The question arises, Are those symptoms due to strain, both physical and mental, the gas being merely the last straw, affecting possibly his mental state rather than his physical condition, or is the gas solely to be blamed?

I have taken the view in such cases that the gas is merely the last incident and is not the real factor, just as in the case of a man being "blown up" by a shell bursting near and symptoms of neurosis following, the being "blown up" is merely the last straw; it is the previous mental struggle and strain which are the real causes.

TABLE VI.—*Causation.*

	First 6 months.		Second 6 months.		Third 6 months.		Fourth 6 months.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Infection before enlistment	210	20.8	263	22.4	230	20.3	246	22.4
Infection after enlistment	42		115		128		191	
Neurosis before enlistment	165	13.6	141	8.4	93	5.2	99	5.1
Strain after enlistment	237	19.6	418	24.8	638	36.2	626	32.1
Civil occupation ...	48	3.9	58	3.4	22	1.2	8	0.4
Constitution	148	12.2	187	11.1	190	10.8	188	9.6
Gas	11	0.9	79	4.7	111	6.3	207	10.6
Age	12	1.0	41	2.4	49	2.8	75	3.8
Various	5	0.6	12	0.7	7	0.4	5	0.3
Unknown	334	27.4	373	22.1	297	16.8	306	15.7
Totals	1,212	100.0	1,687	100.0	1,765	100.0	1,951	100.0

In Table VI I have tabulated the apparent causes under nine headings. Those coming under the heading of "unknown" are unavoidably large, but it would have been mere guessing to attempt to classify these cases accurately; in many of them one could find no attributable cause, and in others there were so many possible factors that it was useless to classify them otherwise.

Undoubtedly the greatest factor in the production of symptoms of D.A.H. is the physical and mental strain of war. It accounts for 19.6 per cent. in the first of the six months and as large a percentage as 36.2 in the third six months. It was impossible in many cases to distinguish whether the strain was chiefly mental or physical, the symptoms produced being identical; I have therefore included the two together under the heading of "Strain after enlistment." That is to say, those under this heading showed no symptoms in civil life, but eventually broke down under the stress of training or active service. The effects of this were clearly shown by the large number of admissions after the German push towards Amiens in March and April, 1918.

Infections.

Infections come easily second as a cause, varying in each period of six months very slightly—namely, from 20.3 per cent. to 22.4 per cent.—and by far the greater number of these were due to infections in civil life and not to P.U.O., as has been widely held.

Table VII shows that the most crippling infection and that producing permanent disability of varying degrees is rheumatic fever. It accounts for from 40.7 per cent. up to 56.7 per cent. of the total cases of infection.

It has been asserted that trench fever accounts for over 50 per cent. of all D.A.H. cases. This was found to be far from the case. Infections account for about 21 per cent. of all cases, and of the infections P.U.O. (pyrexia of unknown origin) accounts for from 6.4 per cent. in the first six months up to 23.2 per cent. in the last period.

TABLE VII.—*Varieties of Infection causing D.A.H.*

	First 6 months.		Second 6 months.		Third 6 months.		Fourth 6 months.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Rheumatic fever ...	143	56.7	188	49.7	193	53.9	178	40.7
P.U.O.	16	6.4	62	16.4	68	19.0	101	23.2
Pneumonia	26	10.3	38	10.0	23	6.4	34	7.8
Scarlet fever	15	5.9	11	2.9	0	0	10	2.2
Enteric	14	5.5	10	2.6	18	5.0	21	4.9
Dysentery	10	3.9	17	4.5	11	3.0	12	2.7
Diphtheria	7	2.8	7	1.8	7	1.9	17	3.8
Malaria	4	1.5	16	4.3	17	4.8	31	7.1
Pleurisy	3	1.3	6	1.6	6	1 7	7	1.6
Bronchitis	2	0.8	19	5.1	10	2.8	21	4.9
Measles	2	0.8	—	—	—	—	—	—
Jaundice	2	0.8	—	—	—	—	—	—
Various	8	3.2	4	1.1	5	1.5	5	1.1
Totals	252	100.0	378	100.0	358	100.0	437	100.0

The following particulars of the discharge of D.A.H. cases following rheumatic fever and P.U.O. respectively throw some light on the severity of the disability following each.

In 798 cases following rheumatic fever 560 were admitted as A men. Of these, 175, or 31.2 per cent., were discharged A, and 79, or 14.1 per cent., were evacuated to England.

Of 238 admitted as B men, 60, or 25.2 per cent., were discharged to England.

Comparing this with the discharges in 422 cases following P.U.O., there were 354 admitted as A men, and of these, 211, or 58.0 per cent., were discharged as A men, and only 16, or 4.3 per cent., evacuated to England.

Of 58 admitted as B men only one man was evacuated to England.

From these figures it appears that P.U.O., which includes all the cases of trench fever, is not a very serious factor in the production of D.A.H., nor does it produce D.A.H. of great or lasting severity.

Pneumonia was the infection which produced the next largest numbers, varying from 6.4 per cent. to 10.3 per cent. of the total infections. Scarlet fever, enteric, dysentery, diphtheria, and malaria caused about the same number.

Neurosis before Enlistment.

Under this heading I have included those men who gave a history of nervous instability in civil life. "Nervous breakdown" was a frequent symptom. This heading accounts for from 5.1 per cent. to 13.6 per cent.

Civil Occupation.

This apparently was not a very important factor. Bakers frequently complained of symptoms of D.A.H. in civil life. From 0.4 per cent. to 3.9 per cent. of cases were accounted for in this way.

Constitution.

From 9.6 per cent. to 12.2 per cent. were accounted for in this group; it includes those who were undeveloped, weakly, and those who from boyhood had been incapable of severe physical exertion.

Gas.

This increased each period of six months, from 0.9 per cent. to 10.6 per cent. In 1917 Colonel Hume published a report on 33 of the cases of severe mustard gas poisoning. His conclusions were that as the symptoms were neither marked nor persistent it seemed unjustifiable to assert that any of them presented a true picture of D.A.H.; that the symptoms of which the patients complained during convalescence seemed to be sufficiently accounted for by the injury done to the lung, by the fever, and by the rather prolonged period in bed; and that there seemed no evidence that the heart was in any way affected save through the increased excitability of the sympathetic nervous system.

In April, 1918, another batch of 16 severe cases of mustard gas poisoning were admitted. These were sent by Captain Barber, R.A.M.C., No. 25 General Hospital; only one had to be evacuated to England owing to symptoms referable to the heart. This man was fit previous to being gassed. On admission he was very short of breath, and had a markedly dilated heart, the apex beat being 4½ in. from mid sternum with a short apical systolic murmur. The remainder returned to duty without any symptoms of D.A.H.

Table VIII shows how 318 gas poisoning cases were discharged. Only 8 of them were evacuated to England, and 61.1 per cent. of the A men were discharged as A. How these gas cases were discharged is a good indication as to the permanence of their D.A.H. symptoms, especially if the following table be compared with the discharges from other causes in Table IX.

TABLE VIII.—*Discharge of 318 Gas Cases.*

Category.		How Discharged.		
A	293	A	179	= 61.1%
		B	62	= 21.2%
		Hospital	20	= 17.7%
		England	8	
		Other dépôt	24	
B	23	B	21	= 91.3%
		Other dépôt	2	= 8.7%
Unknown ...	2	Discharged A... ...	1	
		Discharged B... ...	1	
Total ...	318		318	

I think, therefore, we may conclude that though gas produces during convalescence symptoms of the same nature as D.A.H., yet that these symptoms are neither serious nor lasting.

Age and various diseases other than those mentioned are the cause of a small percentage.

Lastly, those to whom it was impossible to attribute a definite cause accounted for from 15.7 to 27.4 per cent. This seems a large number, but in order to obtain figures of any value in working out the causation this could not be avoided.

CONCLUSION.

In conclusion, I would state that the strain, mental and physical, of warfare is the chief cause of the symptoms of D.A.H. That the causation of next importance is infective diseases, and of these the majority was due to those contracted in civil life, rheumatic fever being the worst offender.

Table IX shows how 6,269 cases of D.A.H. were discharged, and for comparison I have added a table giving the discharge of 790 cases which were due to rheumatic fever and 422 cases following P.U.O.

TABLE IX.

Discharge of 6,269 D.A.H. Cases.		
Admitted as A men	4,991 cases.	
Discharged as A men	48.0	per cent.
Discharged as B men	39.1	,,
Discharged to hospital, O.C.D., England	12.9	,,
Admitted as B men	1,278 cases.	
Discharged as B men	89.0	per cent.
Discharged to hospital, O.C.D., England	11.0	,,
Discharge of 790 Cases of Rheumatic Fever.		
Admitted as A men	560 cases.	
Discharged as A men	31.2	per cent.
Discharged as B men	44.5	,,
Discharged to hospital, O.C.D., England	24.3	,,
Admitted as B men	230 cases.	
Discharged as B men	69.8	per cent.
Discharged to hospital, O.C.D., England	30.2	,,
Discharge of 422 Cases of P.U.O.		
Admitted as A men	364 cases.	
Discharged as A men	58.0	per cent.
Discharged as B men	17.6	,,
Discharged to hospital, O.C.D., England	24.4	,,
Admitted as B men	58 cases.	
Discharged as B men	86.2	per cent.
Discharged to hospital, O.C.D., England	13.8	,,

My thanks are due to Colonel W. E. Hume, C.M.G., A.M.S., for permission to use the records from which the above figures are taken, and also to Lance-Corporal Dillingham, R.A.M.C., whose assistance in extracting the figures was invaluable.

THE PATHOLOGY AND TREATMENT OF STIFF KNEE IN RELATION TO COMPOUND FRACTURE OF THE FEMUR.

BY

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FIBROUS or bony ankylosis of the knee frequently follows compound fracture of the femur when the fracture is into the joint or when there has been prolonged suppuration near the joint.

There is, however, another class of "stiff knee" which follows compound fracture of the shaft of the femur in which the limitation of flexion is not due to articular so much as periarticular and muscular changes. This is the type which yields very satisfactory results with careful treatment, but is frequently dealt with in a very offhand sort of way, leading often to disastrous results. Stiff knee after compound fracture of the femur may be due to articular, periarticular, or muscular causes.

It is chiefly the changes in the quadriceps which concern us at the moment, and before we discuss the treatment it is useful to glance at the pathology of these, as our methods must be guided largely by it. We should keep it in mind that some degree of joint infection must occur in all cases of compound fracture, although in those we are considering the reaction of the joint tissues is generally sufficient to deal with this. The real obstruction to flexion is to be looked for in the very profound alteration occurring in the quadriceps as a result of sepsis and prolonged disuse.

In a typical example we find a markedly wasted and scaphoid quadriceps. On attempting passive flexion of the knee considerable pain is generally caused on account of periarticular adhesions, but if these are absent a very much shortened quadriceps prevents flexion for more than a few degrees. This means that the normal functions of extensibility and contractibility are absent; that in parts dense scar has replaced the muscle tissue; and that there are scars of healed sinuses reaching down to bone. This state of affairs has resulted from the original injury, the persistence of sepsis, and prolonged disuse.

Histologically the picture varies with the position from which the sections are taken. Those near the septic focus show absolute replacement of muscular tissue by scar, while other sections show decreasing amounts of scar as we get further from the site of injury.

Throughout the muscle, even in that portion most distant from the injury, there is considerable shortening of individual muscle fibres, which, in addition to showing marked contraction in size, are in a state of partial degeneration, and as a result of prolonged disuse have "forgotten" how to function. Their condition is in fact that of typical disuse-atrophy.

It is a well established pathological fact that cells in this state tend to be replaced by fibrous tissue, and this does occur to some extent just as in the same way such structures as the ductus arteriosus and thymus, when they cease to function, are gradually replaced by fibrous tissue.

But not only is the muscle substance shortened and partially replaced by scar; the individual fibres are surrounded by lymph spaces which drain into lymph capillaries, and it must be remembered that lymph is coagulable in virtue of the fact that it contains fibrinogen and its cellular elements thrombin. Coagulation will follow any of those incidents which cause clotting of the blood; among these are trauma, contact with harmful nucleo-proteins manufactured in the septic focus, and stasis. Nature attempts to remove this clot by phagocytosis, but as a result of the special conditions we are considering a certain amount of scar tissue remains, gluing the fibres together and forming intramuscular adhesions.

In opposition to the changes above enumerated there is a certain degree of regeneration going on as a result of

proliferation of sarcolemma nuclei, and muscle cell budding and splitting. The survival of the young muscle cells thus formed depends upon the degree of encouragement they receive to function; otherwise they run the risk of destruction before they reach maturity, either simply by disuse-atrophy or by condensation of the recently formed scar tissue. Their failure to survive only increases the amount of fibrous tissue formation.

During the treatment of compound fracture of the femur, then, we have all the necessary conditions for the formation of fibrous tissue in muscle—namely, trauma, sepsis, and prolonged disuse. Our picture of the quadriceps, therefore, is that of a muscle which has practically lost its contractility and extensibility and is pervaded throughout with fibrous tissue gluing the fibres together, and to a large extent actually replacing the muscle cells. In addition, in the neighbourhood of the fracture and about each sinus the muscle is riveted, as it were, to the bone by dense scar. Even with a normal joint such a shortened muscle forms a very considerable obstacle to flexion of the knee. Similar changes are found about tendon sheaths and in tendons and ligaments around the knee-joint due to the same causes.

The conditions to be dealt with, therefore, before we get movement are perimuscular and periarticular adhesions, intramuscular adhesions, contracted and imperfectly functioning muscle cells. Experience in the treatment of stiff knee, following the type of compound fracture we are considering, shows that the real block to flexion is not due to changes in and about the knee but in the quadriceps.

Treatment should be first prophylactic, by chemical sterilization, removal of all sequestra, and early secondary closure of wounds when possible. Secondly, any scarring which binds the muscle to bone and all intramuscular and periarticular adhesions must be broken down. Thirdly, the normal functions of contractility and extensibility must be restored and growth of young muscle cells encouraged.

As soon as the condition of the wounds permit the quadriceps should be treated by graduated contraction by means of the Bristow faradic coil. This loosens intramuscular and periarticular adhesions, and restores tone to the muscle, which begins to increase in size.

If the fracture is united and the patient out of the Thomas splint, a small sand-bag is placed beneath the knee as he lies in bed, the heel being off the bed. The weight of the leg is then sufficient to commence flexion. As the knee begins to bend the size of the sand-bag is increased, the patient being encouraged in the meantime to extend the knee voluntarily. In this way flexion of 20 to 30 degrees is obtained, and graduated contraction and exercises are continued until he is able to fully extend the knee from the flexed position.

The knee should then be further flexed under gas, the remaining intramuscular and periarticular adhesions being broken down in this way. It is most important that during this operation the knee should not be bent beyond the point of extreme muscular extensibility at the time. When this point (generally just short of 90 degrees) is reached the surgeon feels a characteristic jerk, which can only be recognized by experience, but which closely resembles the sudden stop felt on dorsiflexing the ankle of a patient with contraction of the Achilles tendon. The knee and thigh are then vigorously slapped (tapotement)—a procedure which tends to limit any effusion into the joint and deep tissues. The patient is put back to bed either in a suspended knee flexion splint, in which the thigh only is fixed, and which is bent at an angle beyond that obtained during the operation, or simply with the joint flexed over sand-bags as before described. The following day the knee may be slightly swollen, and the patient may complain of some pain on each side of the patella ligament, and where the muscle scarring is most dense. Gentle massage (effleurage) is comforting at this stage, while weak faradic graduated contraction undoubtedly hastens absorption of effusion from the tissues.

This treatment—massage and graduated contraction—should be continued for three days; at the end of this time any effusion will have disappeared and passive movements should be commenced in addition.

Two points will now be noticed: First, that flexion cannot be obtained to the same degree as in the theatre—the loss may be as much as 10 degrees—and secondly, that voluntary extension is only to about 165 degrees. This range, particularly the extension, will increase from day to day under treatment by the Bristow coil and voluntary exercises until the patient is able to perform active movement from about 100 degrees to full extension.

At the end of a week or ten days, if the fracture is firmly united, the patient should be instructed in knee-bending exercises while standing at the foot of his bed. At least every other day he should be made to lie face downward on the bed, and the surgeon, holding the thigh down by grasping just above the knee, should flex the leg passively with his other hand in one slow, firm, continuous movement. By these means flexion beyond a right angle is generally obtained. Daily graduated contraction should be continued for four or five weeks, at the end of which time, if improvement is not satisfactory, the knee should be wrenched again.

There are several precautions to be taken, apart from those already mentioned, when wrenching a knee: First, if the site of fracture is tender to deep pressure, coaptation splints should first be applied. Secondly, there should not be too much anxiety to get too much flexion at one sitting. Overflexion may result in rupture of the quadriceps, injury to the patella ligament and capsule of the joint, or even fracture of the patella. Thirdly, whatever the degree of flexion, the patient is not ready for a second wrenching until he is able to extend his leg fully.

During the after-treatment the graduated contraction should not be too severe. If, following treatment by this method, the patient complains of stiffness in his muscle, it is probable, as pointed out by Major Bristow, that more harm than good is being done. An overworked muscle does not develop, it atrophies.

What has been said about the knee applies obviously, though to a lesser extent, to the other joints of the limb. During treatment, then, it is the duty of the surgeon to see also that the hip and ankle joints and the toes are not allowed to become stiff.

TREATMENT OF BILHARZIAL INFECTION BY TARTAR EMETIC.

BY

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TARTAR EMETIC, as advised by J. B. Christopherson,[1] must be accepted as a positive cure of bilharzial infection. I knew many of the cases on which his recommendation was based, and had commenced the treatment in the Egyptian Military Hospital, Khartoum, where the opportunities of proving or disproving its efficiency are many among the fellaheen recruits of the Egyptian army. Since then McDonough has reported that he had previously used the drug; and Major Strong of the Australian Medical Service tells me that he and one or two brother officers had worked with it in 1916, in fairly small doses and at intervals of not less than a week between the injections, but no one felt convinced of the possibility of curing the disease, nor had anyone the courage to adopt the truly heroic dosage which is necessary to affect the bilharzia worm and its ovum.

Our cases are divided into two series; the first is composed of twenty-six cases which were treated in the period from June 27th, 1918, to August 10th, 1918, and the second of thirty-six cases treated from August 12th, 1918, to January 15th, 1919.

The interval between these two series was longer than the actual dates seem to indicate, for there happened in August an outbreak of influenza in the ward where these cases were; the temperature in all the cases was considerable—never less than 104°—and one patient died whose organs showed most extensive fatty degeneration;[2] fearing the toxic effect of antimony in such cases, the treatment was discontinued in several patients whose urine still showed bilharzia, and the first three of the second series were started on injections of 10 c.cm. of mercury perchloride solution, 1 in 1,000, as has been tried by Madden of Cairo. But this solution failing to have the effect of clearing the urine of blood and ova, we again resorted to tartar emetic, and have used it invariably since.

Of the first series of 26 cases, 14 were discharged with the urine free of blood and ova, 11 were still infected but

were discharged on account of the influenza epidemic, after receiving doses of tartar emetic varying from 3 grains to 23 grains, and one died. All these patients were very heavily infected, having indeed been picked out at inspections for their unhealthy look, and found on examination to be infected with bilharzia. With the one exception all were returned to duty looking fit, and have been able to continue with their units since.

Early in January we asked for these men to be sent for examination, but unfortunately only nine could report.

Of the fourteen discharged cured, four reported.

The result of microscopic examination of the urine was in one completely negative. One had a few ova in a clear urine, and the ova did not hatch out in two hours. One had a little blood, but no ova. One had blood and pus in slight amount, but no ova.

Of the eleven discharged before the urine had quite cleared, five reported.

Two who had received 23 grains and 15 grains respectively had blood and pus, but no ova. One who had had 13 grains had many ova, but none hatched in two hours. One who had 5 grains had some blood and many ova, of which a few hatched. One who only had 3 grains had much blood, and many ova which hatched.

It will probably be contended that these results are anything but satisfactory, but I think they are sufficient to justify a claim for the treatment, if for no other reason, that all the cases were so anaemic and looked so delicate before being treated that they were certain of discharge, but after the injections were able to carry on and do all their duties. Further, of the nine examined five months after treatment had ceased, only four contained ova, and two of this four had barely received treatment, having only had 5 grains and 3 grains respectively before being discharged; yet it was only in these two that any ova in the freshly voided urine would hatch on the addition of water. In the others the ova were dark or granular and did not hatch; they were presumably ova which had been lying dead or so altered as to be harmless, and were only present in the urine because their numbers having been so great in the bladder tissues, and the papillomatous masses one sees in such cases, that their extrusion was taking a long time. Symmers[8] records these same changes in ova found dead by him in the tissues.

The presence of blood and pus without ova in four cases is not to be wondered at when the unhealthy state of a heavily infected bladder wall is remembered; indeed, it is rather a matter for surprise that these two things disappear relatively so quickly as they do when a case begins to clear up.

In this first series the patients had for the first week or two been kept on milk diet, and then bread was added, but the diet never approached an equivalent of the full diet of hospital; this we recognized was a failing in our method, for it is well known that rest in bed on a milk diet will clear up bilharzial urine and give the semblance of a cure which may even persist for some time. It is impossible to state any average dose for the first series, as treatment was so interfered with, but in those cases which were continued until the urine was clear never less than a total of 25 grains was given, and in two cases over 30 grains were administered. This high dosage is in accordance with Christopherson's original work on the subject, but our more accurate and carefully controlled second series show that this dose is unnecessarily large.

The results in the 36 cases of the second series are reported thus early so that others may give the treatment a trial.

The diet throughout was either the ordinary diet or its equivalent—namely, milk 4 rotls, eggs 4, vegetable 1 rotl, rice 1 rotl, and bread 1 rotl; rest was not insisted on except for two hours after the injection—in fact, three of the cases were treated as out-patients, and carried on all their duties between times, as we shall show.

As has been said, the first 3 cases were started on intravenous injections of 10 c.cm. of a 1 in 1,000 solution of mercury perchloride. There were no untoward results from the injection of this apparently large dose every second day, but there was no alteration in the presence of ova in the urine. The influenzal epidemic made its first appearance in the Sudan in the bilharzial ward, and we not unnaturally associated the high temperatures which laid low patient after patient with our vigorous pushing of the tartar emetic; having seen patients not infested with bilharzia become ill and some die, we again attempted the antimony tartrate.

CASE I.

Mohamed S. H. was a typical illustration of how things went. The urine contained great quantities of blood and ova. From October 10th to October 18th he was given an injection every other day of 10 c.cm. of mercury perchloride, 1 in 1,000. No improvement in the condition of the urine occurred. On October 22nd, when the urine contained much blood and many ova, treatment with tartar emetic was begun. He received on that day ½ grain; on October 24th 1 grain, on October 26th 1½ grains, and on October 28th, and every second day until November 6th, 2 grains. After the first three injections of 2 grains he had some cough. On October 28th the urine still contained a little blood and ova were present. On November 2nd blood had disappeared and ova were few. Thereafter neither blood nor ova were detected, and the patient was discharged on November 7th. He was examined on November 19th, when the urine contained neither blood nor ova. The total amount of tartar emetic given in this case was 12 grains.

In order to control the effect still more, the "hatching out" time of the ova on the addition of water to the fresh urine in special glass containers was determined, and the following case is illustrative.

CASE II.

Mohamed F. A. was very heavily infected, the urine containing much blood and many ova, hatching in ten minutes. On November 5th he was given ½ grain of tartar emetic, and on November 7th 1 grain; on that day he had cough, and the condition of the urine in respect of blood and ova was unchanged. On November 9th he was given 1½ grains, and again had cough; on November 11th he received 2 grains, and on these two days the ova hatched in fifteen minutes. Thereafter he was given 2 grains every second day until November 27th. On November 13th the ova hatched in half an hour; on November 15th in one hour; on November 17th in an hour and a quarter; on November 19th ova hatched, but movements were very sluggish; on November 21st the ova did not hatch in three hours, and this was true also on November 23rd, on which day the patient felt weak. On November 25th there were few ova, and on November 27th none, but the patient had cough followed by slight fever. He was discharged on November 28th. When examined again on January 12th, 1919, the urine was quite clear, but contained a few black ova, which did not hatch. He was detained in hospital and the urine examined on two succeeding days, when ova were still found, but always black and apparently dead. The total dose of tartar emetic in this case was 20 grains.

Two interesting but quite common phenomena were displayed in this case—namely, the gradual killing of the vitality of the ovum, as seen by the lengthening out of the hatching period until at last when it broke it released a slow moving miracidium in place of the rapidly darting one; and, secondly, the discoloration of the ovum.

This case also shows what we had come to recognize as a general fact—namely, that after the patient had received 5 grains of the drug the improvement is rapid; the amount of blood for the first time begins to diminish and the "hatching out" time appreciably lengthens.

But all these results might quite easily be ascribed by doubting critics to the restful life of hospital, so we have pleasure in recording three cases whose mode of life was in no wise altered while under treatment, except to give them a two hours' rest after the injection, and even that one of them—the son of a civilian syce—did not have, as he constantly ran out of the ward so soon as he found it possible to evade the orderly, and that was usually in a quarter of an hour.

The following case is typical of the three:

CASE III.

Ahmed S. reported voluntarily for treatment, and we took trouble to explain to him that the idea of the treatment was not to discharge soldiers but to retain them, for every one knows how the Egyptian fellah loathes the army and will even mutilate himself to escape his military service. He said he understood the matter fully, but that he was anxious to be cured.

On December 9th, 1918, when treatment with tartar emetic (half a grain) was begun, the urine contained much blood and ova, which hatched in fifteen minutes, were present in great numbers. He received one grain of tartar emetic on December 11th, and one grain and a half on December 13th. The urine examined on these days was in the same condition as on December 9th. From December 15th to December 25th he received two grains of tartar emetic every second day. On December 15th the ova hatched in forty minutes. On December 17th there was much less blood; ova were present but did not hatch. On December 19th the urine was clear and the ova did not hatch. After that date the urine was clear and no ova were seen. Examination of the urine on many occasions down to January 1st, 1919, revealed nothing but a few oxalates. The total amount of tartar emetic given in this case was 14 grains.

Method of Administration.

The tartar emetic is made up with normal saline in the strength of ½ grain in 2 c.cm., and is sterilized in an autoclave each time immediately before injection. A 10 c.cm. syringe is used, and as we sometimes had over twelve cases to inject at one time, and only one syringe was at that time available, we did not sterilize it afresh between each injection, but washed it out carefully by filling several times with sterile saline, and in that way removed all blood, so that any danger of haemolysis was removed. There was always a sufficient supply of needles kept freshly sterilized; if any of these needles became blunt we discarded them, as the danger of not getting properly into a vein only exists with such an unreliable needle. An injection was never commenced until the blood of the vein had been seen in the barrel of the syringe, and the plunger was always pulled back a little twice or thrice while the injection was being made to ensure that the needle had not shifted out of the vein. The skin over the vein was painted with tincture of iodine and one turn of bandage constricted the arm above the part. Working in this way in the last thirty-eight cases we did not have a septic arm nor anything more than a very slight and passing phlebitis; but in the first seven we had three rather severe infections; two had to be opened and dressed. The reason we found afterwards to be that one of our assistants had septic fingers, and though he never handled the needles or articles actually giving the injections, the infection must have passed from his fingers to the lips or edges of some of the dishes. Anyhow, when he was excluded from taking part in the procedure, all went well.

Injections were always given fairly slowly, especially in those cases where vertigo developed; by this means the number of such cases is diminished.

Complications.

Cough is extremely common, but is usually very slight. In two cases, however, we had seen it so bad as to lead to slight haemoptysis; even in these the symptoms disappeared in a quarter to half an hour. The cough is usually associated with a considerable amount of frothy expectoration which ceases when the coughing is over.

Vertigo is much less common but more troublesome; in three cases we first of all reduced the dose from two grains to one, and had finally to discontinue the treatment before the urine had been quite cleared, as the effect on the men was so great.

Vomiting was fairly common, but never severe. We have never seen any of the bowel complications—for example, diarrhoea—mentioned by Christopherson as seen in the treatment of bilharzia, and of which we have seen cases when treating kala-azar by this drug.

Of complications resulting from the injections themselves, the only one to be expected, if reasonable attention to asepsis is given, is a little phlebitis at the seat of puncture of the vein. This was not very common, and depends on the idiosyncrasy of the patient, for in a case where it had once occurred it tended to occur again. It was never severe, being little more than a tenderness with a rise of 1° or 1.5° F. in the worst cases; all symptoms disappeared on the exhibition of a hot fomentation to the painful spot. On the other hand, if any of the fluid were allowed to escape from the vein into the tissues, the resulting inflammation and necrosis was much greater than is seen with a similar accident from "606," although the ultimate result is always good once the necrotic tissue has been evacuated. In our second series we did not have one case where phlebitis or any similar conditions gave us the least trouble.

Results.

The results of the second series of thirty-eight cases were as follows: Twenty-eight were discharged cured, no ova being found on careful examination of the urine. In one or two very little blood still existed, but it was surprising how in the vast majority, from being almost pure blood, the urine became absolutely negative.

Two were invalided from the service after receiving only 4 grains each; the first of these was invalided because of his very poor state of health, and the second because of the multiplicity of the intestinal infestations (ankylostoma, taenia, oxyuris) and a continued low fever. One, after receiving 16 grains, was much affected with vertigo and treatment was stopped, although the urine contained more blood and mucus than we liked. We might possibly claim this case as actually a cure, for no ova were found on the last examination. Four were discharged with ova still in the urine after doses of 15, 13, 11, and 10 grains respectively because of vomiting and vertigo. Our intention in such cases is to suspend treatment for a month or two and then resume it, but so far we have no data to give. We are firmly convinced that severe vertigo and vomiting are indications for the discontinuance temporarily of tartar emetic.

Of the twenty-eight cases discharged cured we had the good fortune to examine fifteen during the first to second month after they left the hospital, and in none were blood or ova found. The other thirteen were not in Khartoum, so that we have so far no details to give of them.

CONCLUSION.

We apologize for the recent character of the cases in this paper, for we know only too well the criticisms to which it is exposed. At the same time we feel that the faith that is in us relative to the value of tartar emetic in bilharzial infections is justified by the results we have given, for these results are not based on naked-eye observations or beliefs, but on the non-partisan findings of the microscope. Nor can it be said that we have done no more than has so often been done by rest in bed or low diet, for our most instructive results were on ambulant cases with full diet, and no case was treated on anything else than a generous diet.

"But the blood and ova will recur," says the persistent sceptic. Perhaps he is correct; if so, we will repeat the treatment, and so kill the few remaining schistosoma that escaped our last injections.

Let any one try the effect of even four initial injections—that is, 5 grains—and watch the effect on the hatching period of the ova when water is added to the freshly voided urine, and we are sure he will feel justified in going on to the 15 grains, which we feel is a sufficient and perfectly safe dose to kill the bilharzia without affecting the patient, although in saying this we see no danger in going on to the 25 grains which Christopherson now considers the optimum.

Acknowledgements.—We are extremely grateful to Colonel Carroll, D.S.O., P.M.O. Egyptian Army, for allowing us to do this work and to publish these results; and to Yusef Eff Bakri and Suleiman Eff Abaza, both medical officers of the Egyptian Army, who gave kind assistance and showed keen interest in the work.

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A CASE OF HYDROCEPHALUS.

BY

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ON February 14th, 1916, Dr. Squire of Pudsey asked me to see with him an ex-soldier invalided owing to suspected cerebral tumour. For the previous eighteen months headaches and diplopia had been the principal symptoms. Latterly his sight had deteriorated, and during the last few days he had suffered from intense left-sided supra-orbital neuralgia.

He was found to have right homonymous hemianopsia; papillitis on both sides; on the right with swelling of 1 D., and on the left of 4 D. The pupillary reflexes were present and the hemianopic pupillary reflex absent. Irritation of the recurrent meningeal branch was considered to be the explanation of the intense neuralgia. He had diplopia from paresis of left external rectus.

There was ataxy of the arms, more pronounced on the right side. The plantar reflex was extensor on the right side. Eleven days afterwards the pulse rate was 48, and the respirations 12; slow cerebration and cerebral vomiting were very pronounced.

First Operation.

The same day the left subtemporal area was decompressed. On reflexion of the dural flap the pent-up cerebrospinal fluid burst through the wall of the lateral ventricle. The dural flap was turned down and invaginated between

the bone and the temporal muscle, and the wound closed in the usual manner.

The next day the pulse was 86, the respirations 22, and previously subnormal temperature had risen to 99.2°. By the second day the plantar reflex had become flexor in type.

On the third day he said that "there was a little man kept running along the bed-rail"; "everything has a red appearance;" "the room is queer-shaped—there are so many corners in it." The auditory cortical centres were also disturbed, as he heard "some one talking to him behind the bed-head." The hallucinations ceased in a few days, and might have been prevented by operating on the right side, had this been feasible. In the case of another right-handed patient, published in 1912,[1] the wall of the posterior horn of the right lateral ventricle ruptured spontaneously during the operation, but no such symptoms occurred during convalescence.

Three months later vision was as follows:

R. $\frac{6}{6}$; 1 Jaeger at 13 in. L. $\frac{6}{6}$; 10 Jaeger at 13 in. No signs of papillitis. Right homonymous hemianopsia still present.

The patient sought relief from the disfigurement of a large hernia over the temporal area which displaced the upper part of the pinna downwards and outwards; he was quite prepared to undergo any operation which would open up fresh channels of escape for the cerebro-spinal fluid. Cushing's operation of retroperitoneal drainage through the lumbar theca was contraindicated, since lumbar puncture had demonstrated that the foramen of Majendie was blocked. We decided to explore the right cerebellum for tumour, and, if no tumour were found, to open up the posterior subarachnoid reservoir (Parkin's operation), and to utilize the deep tissues of the neck as a drainage area, if needful.

Second Operation.

The right lobe of the cerebellum was explored with a negative result. There was a gush of fluid on opening up the posterior extremity of the cisterna magna.

Recovery was uneventful, and, when re-examined two years later, the hernia had disappeared. The stretched skin over the left temporal area could be rolled between the fingers and thumb. The right suboccipital area was not prominent. The sight of both eyes had improved but the hemianopsia persisted. He has resumed his pre-war duties, the chief of which is that of driving a motor car.

The etiology, as is not unusual in these cases, remains unknown.

My thanks are due to Dr. Squire for much assistance in the conduct of the case, and to Mr. Haigh, of the Royal Infirmary, Halifax, for taking post-operative skiagrams of the decompressed area of the skull.

REFERENCE.

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FLAT-FOOT.

BY

LIEUT.-COLONEL HENRY SMITH, C.I.E., I.M.S.,

AMRITSUR.

A GOOD deal written on the subject of flat-foot has been far too much to show that the leg muscles attached to the tarsus were intended by Nature to support and maintain the arch of the foot. It seems to me that Nature no more intended the leg muscles attached to the tarsus to maintain its form than that the corresponding muscles attached to the carpus were intended to maintain its form. The corresponding muscles attached to the carpus are plainly intended to move the joint and nothing else, and in my opinion the same holds as regards the leg muscles attached to the tarsus. They are merely intended by Nature to move the ankle-joint and the joints of the tarsus. If these muscles had to support the weight of the body or a portion of that weight they would very quickly lengthen and be useless for that purpose. The strong ligaments of the sole have something to do with the maintenance of the arch, though if the weight of the body is excessively thrown on them, as in the development of flat-foot, they too give way and lengthen. The cause of the evil in flat-foot and in over-high instep is to be found in the skeleton formation. Normally the heel, the outer side of the tarsus, and the metatarsals carry the weight at rest and in motion. If the formation is such that the weight of the body is thrown too much on the inner side of the foot we have flat-foot; if too much on the outer side of the foot we have over-high instep, which cripples a soldier in marching as much as a flat-foot. When for knock-knees we cut the thigh bones in a child of, say, 10 or 12 years of age and set the legs straight, we would have reason to be anxious about the loose ankle-joints, due to the undue looseness of the external ligaments. When we see the patient five or six years later we find that Nature has "taken up the slack" and that the ankle-joints are perfect, as well as the general symmetry of the limbs. Here we have merely dealt with the skeleton. We have adjusted it so that the weight is conducted as in a normal case, and Nature takes care of the rest.

I know a farmer in Ulster whose amusement from boyhood was to shoe a crooked-footed horse. He had no teacher in the art, studied the issues himself, and never read books on the subject. He had experimented to such a degree that I doubt if there is a professional or other horse-shoer in the empire—including veterinary surgeons—who could shoe a crooked-footed horse better than he, and exceedingly few who could do it as well. He was a born mechanical genius. I often talked the matter over with him, and though he had never heard of the centre of gravity or of muscle attachments, he had got to the bottom of the subject, and was scientific to the last degree. A few years ago I was spending an evening with him, and a flat-footed workman came up to us. I requested him to strip the feet, and asked the farmer how he would "shoe" him. He had not previously devoted any attention to orthopaedics—a term he had never heard of. He asked the man to stand in an attitude which a soldier calls "attention," and walked round him, looking at the legs and feet. He drew my attention to the fact that the inner side of his feet was not straight, but bulged inwards at and below the ankle. He then said the cause was plain; that flat-foot was due to the formation of the skeleton, which threw the weight of the body too much on the inner side of the foot, and that the remedy was plain. I then asked him about an over-high instep. He replied that it was the opposite of an over-low instep, and the cause must be the reverse, and the remedy the reverse. He said he would get the bootmaker to make the insole (which is usually made of thin leather all the same thickness) of the heaviest sole leather for the flat-foot, full thickness from heel to toe on the inner side and pared away like a wedge to the outer side, and the reverse for an over-high instep. By this means he said he would throw the weight further out on the foot in the case of a flat-foot and further in in the case of an over-high instep. In the case of the over-high instep he said the instep would sink under this treatment. He also said it would require some experimentation to find the most suitable thickness of the thick side of the insole to suit the individual case. I then explained to him the steel plates which orthopaedists use for flat-foot, and that they claimed that they supported the arch. He laughed at the idea, and said that if the plate supported the arch, it would press on it and would certainly lame the man, and that any benefit it might have was due to raising the whole inner side of the foot, and thus throwing the weight of the body further out.

I am personally convinced that the farmer was right both as regards the causation of these two conditions and as to the method of treating them, and I would respectfully invite the attention of those who have to deal with these conditions to this aspect of the question.

KEIFFER has published in *Le Scalpel* the results of a study of the physical and mental state of Belgian women during the war. The effects of privation began to show themselves in 1915 in disturbances of nutrition, wasting, enlargement of the glands of the neck, and rickety lesions. Tuberculosis caused great ravages, especially in young girls. In married women, long before the menopause, amenorrhoea was very common; with the signature of the armistice it diminished. Keiffer attributes it to the insufficiency and bad quality of the food, as well as to the mental suffering caused by the German occupation.

THE Massachusetts Commission of Mental Diseases states that 200,000 persons in the United States suffer from epilepsy, and that only 3.5 per cent. of these are cared for in institutions. Thirteen States in the Union have colonies providing for the care of 7,000 epileptics.

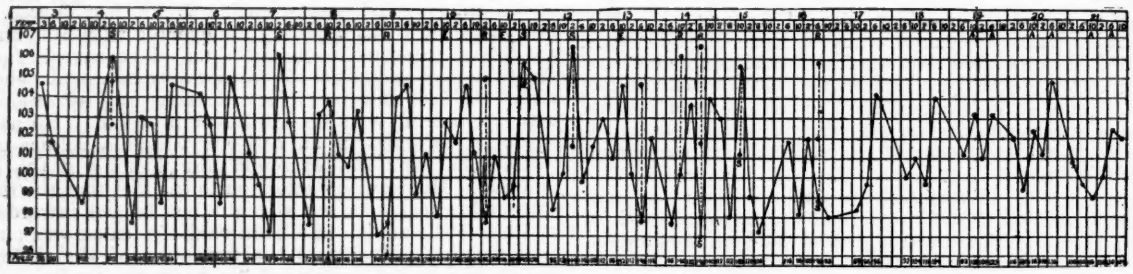
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF TREVES'S MASKED APPENDIX.

THE following case is worth publishing for two reasons—first, because the patient recovered from a severe portal pyaemia, and secondly, because every possible source of primary infection was very carefully gone into without throwing any light on the cause of his disease:

The patient, an engineman R.N.R.T., aged 39, was admitted to hospital from a trawler on October 3rd, 1917, giving a history of having been ill for forty-eight hours with headache and severe shivering fits. On admission there was a slight icteric tinge in the conjunctiva, and the liver and spleen were a little enlarged. A suppurating superficial wound of middle and ring finger of right hand, with fracture of first phalanx of ring finger, had been caused by the chafing of a wire rope. No history was obtained of malaria or any previous illness. There were no abnormal physical signs in the heart or lungs, and no history of appendicitis could be elicited. A diagnosis of portal pyaemia was made, but the *fons et origo* of the condition could not be discovered. The four-hourly temperature chart (of which a portion only can be reproduced) showed a series of severe rigors. The patient's heart muscle soon began to deteriorate, and his



S=Sponged. R=Rigor. E=Eusol, intravenously. A=Antistreptococcic serum.

dependent parts became waterlogged, causing sloughing of the scrotum and perineum, and producing a perineal urinary fistula, through which all his urine escaped.

The fractured phalanx showed no attempt at union, and the patient's vitality was so lowered that his condition was many times considered to be hopeless. Intravenous injections of 100 c.cm. of eusol were given on October 10th, 11th, 12th, and 13th, and two 40 c.cm. doses of antistreptococcic serum were given daily from October 19th to 29th inclusive, but neither seemed to have the smallest effect. Very gradually the patient seemed to wear down his disease and slowly returned to convalescence. His appetite had remained excellent throughout.

As soon as the denuded surfaces showed signs of the appearance of healthy granulations, a plastic operation was performed to close his urinary fistula and provide covering for his testes, and at the same time good union took place in his fractured phalanx, after weeks of no attempt at union.

On February 7th, 1918, when quite convalescent and about, the patient developed a typical attack of appendicitis. At the operation a matted appendix was found densely bound down with old adhesions. He was discharged to duty on March 10th, 1918.

He always denied having any pain in his abdomen, and certainly allowed deep abdominal pressure with the examining hands all over his abdomen without experiencing even discomfort, to say nothing of pain, until he developed his attack of appendicitis, when well of his pyaemia.

F. DALTON,
Surgeon Commander, R.N.

Royal Naval Hospital, Portland.

A CASE OF SUDDEN DEATH FROM ELECTRICITY.

DEATH from an electric discharge is due to the actual current passing through the body. The voltage in most recorded fatal cases is very high, and often there have been circumstances which would lessen the usually high resistance of the body, and so increase the amount of current electricity passing through the tissues, such as wet clothing or, more especially, moisture of the skin. In the following case the pressure was 250 volts (alternating current), the maximum allowed in dwelling-houses, etc., by the Board of Trade regulations.

On April 9th, 1919, whilst I was a medical officer in a military hospital, I was called to see F. H., a private in the Royal Engineers, employed in the engine house of the hospital. The chief engineer, who had called me out, told me on our way to the engine house that H. had been using a portable electric hand lamp which suddenly went out; the lamp was connected to the ordinary lighting wires. The man removed a small piece of the insulation, leaving one wire exposed. He was seen to fall suddenly and lie still. The current was shut off promptly and the man removed to the open air. The engineer stated that as he left to get a medical officer, H. was of a "bad colour and gasping for breath."

Ten to fifteen minutes must have elapsed before my arrival, when I found H. lying on his back in the open with his clothing well loosened. His face and ears were a dusky bluish colour. The heart sounds could not be heard; the pupils were equal but widely dilated, and no sign of life was apparent. The body seemed to have cooled a little. Artificial respiration was tried in vain. I believe death was practically instantaneous. A thorough examination of the body later failed to show any marks except a small raised thickening on the inner side of the left middle finger near the tip: it bore the imprint of the wire, and was brownish in colour, but it did not smell of burning. There were no marks of any sort on the clothing.

The deceased was a powerfully built young man without any history or evidences of heart trouble. He had been playing football about an hour before, but his army shirt and his hands were free from perceptible perspiration. He was wearing the ordinary army ammunition boots, shod with iron heel-plates and nails, and at the moment of the accident he was standing on an iron grating. The fuse in the distribution box did not give out, as only one of the wires had been completely exposed.

It is worthy of note that the stated voltage of an alternating current is only the mean of a rhythmical rise and fall, so that in this case the pressure could have risen to a maximum of 260 volts. Electricians are of opinion that 250 volts alternating current are more dangerous than 500 volts continuous current.

A. G. B. DUNCAN, M.D.Aberd.

Aberdeen.

A CASE OF PALATAL PARALYSIS FOLLOWING INFLUENZA.

THE following case of palatal paralysis, which occurred during the November epidemic, is worth recording, as it is difficult to dissociate it from what was apparently a straightforward case of influenza.

A girl aged 6 years had an attack diagnosed as influenza in November, 1918. It seems from the mother's description to have been only moderately severe, the fever lasting about four days. There was some general catarrh, cough, and furred tongue. At about the same time the whole household was afflicted with the same disease. A little more than two weeks after the fever the child began to speak with a nasal voice, and a week later still was brought to see me at the Children's Hospital in Harrow Road. I had often seen her before, as she was a delicate child and had attended with various ailments, so that I recognized immediately the alteration in the voice; it was, in fact, the typical nasal voice of palatal paralysis. The palate was found to be immobile. The fauces were quite clean. The pupils were equal and reacted well. The right knee-jerk was completely absent, the left knee-jerk feeble. The condition cleared up in about two months, and the voice is now normal.

Peripheral neuritis is recognized as a sequel of influenza, but is, I believe, rarely located in the palate. The obvious objection to the diagnosis of influenzal paralysis is that there is no real proof that the feverish attack was not diphtheria. This objection would have been difficult to meet had the case been isolated, although the symptoms and course did not sound very like those of diphtheria; but since all the members of the household were having influenza at about the same time, it at any rate comes within the bounds of possibility that the palatal paralysis was produced by the influenza toxin.

HAZEL H. CHODAK, M.D., M.R.C.P.

London, W.

Reviews.

TRENCH FEVER.

THE heavy wastage and the increasing invalidity from trench fever caused the War Office to establish a Committee of Investigation at Hampstead in December, 1917, with a view to determining with certainty the methods of transmission of the disease. The committee had as its chairman Sir David Bruce, and the volume entitled *Trench Fever, a Louse-borne Disease*,[1] is a report of its work, edited by Major BYAM, with the assistance of Captains J. A. Churchill, Lyn Dimond, V. E. Sorapure, and Lieut. Ll. Lloyd of the R.A.M.C., and Captain J. H. Carroll, of the U.S. Medical Service. It was probably rather more than a coincidence that almost simultaneously an American Red Cross Commission was beginning similar work in France, and an interesting competition for priority was thereby instituted, which, according to Sir David Bruce in the preface, was won by the English committee by a very narrow margin. Of more importance than priority was the essential similarity of the findings of the two committees. A detailed review of the American Commission's Report has recently been published in these columns,[2] but a summary of it by Lieutenant R. H. Vercoe appears as an appendix to Major Byam's book.

Is trench fever a new disease? The majority of observers would answer this question in the affirmative, but Major Byam rather leans to the opinion that it has always been present, and quotes Werner in support. Whether this be so or not, it is certain that it has never before been recognized as an entity and taken from the great waste-heap of pyrexias, fevers, febriculae, etc., which the older medicine, without the aid of pathology and bacteriology, had accumulated. The war may be said to have defined trench fever as a specific pyrexial disease, characterized by an abrupt invasion and pyrexia of five days, associated with splenic enlargement, general pain, mild conjunctivitis, and showing a tendency to periodic relapses. The acute early stages are now familiar to all, either from personal observation or from current literature, and need not detain us long. It is necessary to note, however, that the temperature curves show many variations, and six definite types are charted in the book. Another point to note, because it was not reported until comparatively recently, and subsequently elaborated by Carmalt-Jones, is that definite areas of skin tenderness may develop, corresponding to the eighth cervical, first and seventh dorsal, and lumbar segments.

The mode of transmission of the disease was the main problem before the committee. It was known from McNee's work in 1915 that the blood of a patient was infective, for he had produced the disease in a healthy man by injecting blood obtained from a patient. The American work in France indicated that the infecting agent was free in the plasma. Whether the virus is filterable or not is still a moot-point, for the findings of the Americans that it is a filter-passer are not accepted in their entirety by the War Office Committee. Should the virus prove to be a filter-passer this will add another point to complete the resemblance with typhus fever, which is regarded as the type of louse-borne diseases. This brings us to the most important point in the experimental work, the final incrimination of the louse as the conveyor of the disease. What had long been suspected on clinical and epidemiological grounds in France was proved in the laboratory, thanks to the self-sacrifice of many volunteers, men who from age or physical infirmity were unfit for military service but who gladly did what they could, and whose photograph forms a fitting frontispiece to the book. In their incrimination of the louse the British are at one with the Americans. As to the actual method of transmission they vary, for by the former the bite is regarded as an uncommon mode of infection, the common one being by the grinding of infected excreta into an abraded surface, whereas the latter regard the bite as the most frequent mode of infection. Probably both are correct, for the one method can hardly exist without the other under natural conditions. But the discovery that the excreta of infected lice may convey infection is highly important, for it indicates possibilities of dissemination when the lice themselves have been destroyed. The experiments were conducted with the greatest exactitude, and the results briefly summarized are that excreta from lice fed on trench fever patients are capable, when applied to an abraded skin area, of producing clinical trench fever. This property does not belong to the excreta of healthy lice. Infected excreta retain their virulence for long periods, even up to 120 days. The excreta from a single infected louse are capable of producing trench fever.

That the infection can persist for a very long time is evidenced by the fact that blood from an infected man has been found still infective 300 days after the onset of the disease. This fact is one of fundamental importance in dealing with cases in the field, because it indicates the necessity for preserving patients from reinfestation with lice if the spread of the disease is to be checked. Only those who have had experience in field hospitals where "delousing" facilities are inadequate will fully realize the difficulties to be combated.

On the pathology of the disease little fresh light is shed. A certain amount of evidence is adduced concerning the rickettsia bodies, which have frequently been demonstrated in infected lice, but the search for a causal organism cannot as yet be regarded as having afforded any satisfactory conclusion.

For the first time in English literature, so far as we know, the chronic stage of the disease has been adequately dealt with, and to this chapter special attention should be paid. Occasional notes have appeared in medical journals describing cases of trench fever cachexia, which the writers seemed to look upon as rare. There must, however, be many hundreds of men, either discharged as permanently unfit or still in hospital, who are examples of the chronic infection. How long this may continue the authors cannot tell us; nor can they indicate when the possibility of a relapse may be definitely excluded. Further, many cases of so-called neurasthenia and D.A.H. have undoubtedly originated in trench-fever infection. The descriptions of the chronic disease, with its long continued recrudescences, and the explanations of the cardiac and nervous conditions arising therefrom, should be studied by all who are concerned in the care of such cases.

On treatment itself nothing very new is forthcoming. A formidable list of drugs tried and found disappointing is given, but so far no specific has been discovered. Reference is made to the good results claimed by Major Sweet, U.S.M.C., from the use of intravenous collargol, but independent confirmation is needed before his view can be accepted, for in other hands the treatment has failed.

Prophylaxis is fully discussed, and it may be summed up in the one word, so popular in France, "delouse." How that may best be effected was a problem which taxed the ingenuity of sanitarians in the field. Now that the excreta have been proved infective the problem is widened, for mere laundering of patients' clothing is insufficient to disinfect. All recognized methods of delousing are described by the authors, and we are glad to see that they are in favour of steam as opposed to dry heat. One of the medical lessons of the war is the necessity for a portable standard steam box which can be relied on to disinfest clothing and equipment, and such a box will have to become part of the equipment with which every unit will take the field in the future.

The moral of the whole book is—"The louse is the carrier of infection; kill him."

Future generations will look back on the work of these two commissions, and will regard it as one of the best examples the war has furnished of "team" work carried to a successful conclusion. Meanwhile, present-day medical men who are concerned with the immediate problem of repairing the wreckage of war will find Major Byam's book invaluable, for it contains all that needs to be known about trench fever, and its intelligent study should ensure that in peace, at any rate, the ravages of this disease shall be confined to the present actual victims.

[1] *Trench Fever, a Louse-borne Disease*. By Major W. Byam, R.A.M.C. London: Henry Frowde, and Hodder and Stoughton. 1919. (Med. 8vo, pp. xvi+196; illustrated. 16s. net.)

[2] BRITISH MEDICAL JOURNAL, November 23rd, 1918, p. 577.

TREATMENT OF INJURIES OF THE LIMBS.

IN November and December, 1917, Professor ARTHUR KEITH, Conservator of the Museum of the Royal College of Surgeons of England, delivered a course of lectures on the anatomical and physiological principles underlying the treatment of injuries to muscles, bones, and joints. These he has now collected into a volume with the title *Menders of the Maimed*.[3] He follows the historical method; he begins with John Hunter and goes on to Hilton and H. O. Thomas and to the introduction of tenotomy by Stromeyer and W. J. Little. Then with Marshall Hall and Duchenne of Boulogne he passes to what may be called the neurology of injuries. Next he deals with tendon transplantation, and then with the introduction of certain orthopaedic methods to British surgery, and with the forerunner (Sayre) of the modern American school of orthopaedic surgery. Then there is a chapter on movement as a means of treatment, in which justice is done to Lucas-Championnière, and after that the introduction of gymnastics and massage to surgery is described. Three chapters follow on the physiology and pathology of bone, and on bone grafting. The penultimate chapter deals with the origin of our knowledge concerning articular cartilage in health and disease, and the last chapter is on bonesetting, ancient and modern.

We strongly commend the book to attention; it is not a compilation nor a history, but an essay tracing the development of a department of surgery always important, but now of greater significance than ever. It is agreeably written, and illustrated by a series of sixteen portraits, from John Hunter to Peter Redfern.

VICIOUS CIRCLES.[4]

CLINICAL experience affords abundant evidence of the fact that morbid conditions of all kinds are apt to produce effects which react upon each other. Such evidence is scattered through many textbooks and treatises, but it has only been collected and analysed of late years by Dr. J. B. HURRY, the third edition of whose work has now been presented in a somewhat more expanded form than on its first appearance eight years ago.

Well printed in large type and abundantly illustrated with diagrammatic schemes of the various vicious circles dealt with, the book contains a wealth of material. Successful treatment depends largely upon the possibility of checking causation, but too often the starting-point of the morbid process lies outside the range of the physician's powers of attack. When it is being maintained by the formation of a vicious circle a great deal may be done to break its continuity, and so to remove one link at least in the causative chain. Some new chapters are devoted to the manner in which such circle-breaking may be achieved by natural processes and by art. In these, as in almost all other parts of his book, the writer makes free use of quotation from authorities of greater or lesser weight. The sequence of vicious circles in the diseases of animals and plants is examined in like manner and presents many points of interest.

As an educational work, the volume does not contain much that is not familiar to every experienced clinician; but the discussion of well known phenomena from a different standpoint is always interesting, and Dr. Hurry has succeeded in presenting his subject in an attractive and readable form.

MEDICINE AND NURSING.

THAT no one can write such a pleasant medical sermon as the author of *Aequanimitas* is emphasized by Sir WILLIAM OSLER's article on "Medicine and Nursing,"[5] which is reprinted and sold separately from the *Essays on Vocation*, edited by Mr. BASIL MATHEWS. The four prominent features of the medical profession are its noble ancestry from the Greeks, its world-wide identity of aims, its progressive advance, and its beneficent ideas. It is true that there are "Gehazis among us who serve for shekels, whose ears hear only the lowing of oxen and the jingling of the guineas," but these are exceptions. Medicine is a most difficult art to acquire and a broad outlook is most essential, for there are no more dangerous members of the profession than those born into it, so to speak, as specialists. The student's ambition should be to become a general practitioner; to speak of the passing of the family physician is absurd, for never was he as prominent or so useful; he still does the work while the consultant and the specialist do the talking, the writing, and the fee-taking. In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner.

It was during the Crimean war, one of the recurring attacks of race mania, that the nursing profession, until then unsettled and ill defined, took, under the guiding hand of Florence Nightingale, its modern position. The trained nurse with the priest and the doctor form a trinity to look after suffering humanity, and there is no higher mission in life than to look after God's poor.

[3] *Menders of the Maimed. The Anatomical and Physiological Principles underlying the Treatment of Injuries to Muscles, Bones, Nerves, and Joints.* By Arthur Keith, M.D., F.R.C.S., F.R.S., etc., Conservator of the Museum and Hunterian Professor, Royal College of Surgeons, England. London: Henry Frowde, and Hodder and Stoughton. 1919. (Demy 8vo, pp. xii + 335; 16 portraits, 7 figures. 16s. net.)

[4] *Vicious Circles in Disease.* By Jamieson B. Hurry, M.A., M.D.Cantab. Third and enlarged edition. London: J. and A. Churchill. 1919. (Demy 8vo. pp. xx + 377; 22 plates. 15s. net.)

[5] *Medicine and Nursing.* By Sir William Osler. Issued separately from *Essays on Vocation.* Edited by Basil Mathews. Oxford University Press: Humphrey Milford. 1919. (Pp. 12. 6d. net.)

NOTES ON BOOKS.

DR. J. F. SPENCER'S *Metals of the Rare Earths*[6] is a valuable monograph on a subject that is of great commercial importance to the world at large, as well as of immense interest to the chemical theorist. It is doubtful whether the man in the street has ever heard of any of the score or so of these metals, although to two of them—thorium and cerium—he owes his incandescent gas mantles, and to one of them—cerium—his automatic cigarette lighter. The book is one for the chemist, and contains an exhaustive list of references to the literature of the rare earths.

OSTROM'S *Massage and the Original Swedish Movements*[7] is a practical little book that may serve as an introduction to the subject with which it deals. Clear directions are given showing how the different forms of massage may be applied to various parts of the body in disease, and numerous illustrations do much to add to the clarity of the text. The book is one for those practising massage.

Captain G. MALAN'S synopsis of symptomatology and therapy in internal medicine[8] is a rather breathless and crowded little volume designed to serve as a refresher for the memory of medical students, whose labour he compares—rather unkindly, perhaps—to that of the Danaidae. It may be recommended to those in search of an Italian cram-book of symptoms and treatment.

[6] *The Metals of the Rare Earths.* By James Frederick Spencer, B.Sc., D.Sc., Ph.D., F.I.C. London: Longmans, Green, and Co. 1919. (Med. 8vo, pp. x + 279; with diagrams. 12s. 6d. net.)

[7] *Massage and the Original Swedish Movements: Their Application to Various Diseases of the Body.* By Kurre W. Ostrom, from the Royal University of Upsala, Sweden. Eighth edition, revised and enlarged. London: H. K. Lewis and Co., Ltd. 1919. (Cr. 8vo, pp. x + 196; 125 figures. 5s. net.)

[8] *Sunto di Sintomatologia e Terapia Medicina Interna.* By Dott. Guido Malan, Medico dell'Ospedale Maggiore di Torino. Milano: Società Editrice Libraria. 1919. (Post 8vo, pp. 152. L.6.50.)

APPLIANCES AND PREPARATIONS.

Osmos Aperient Water.

"OSMOS" is the proprietary name of a British aperient water manufactured by Messrs. Valentin, Ord and Co., Ltd., Hayes, Middlesex, and claimed by them to be identical in composition and properties with Hunyadi-Janos water. Analysis of a sample recently submitted to us shows it to contain:

Magnesium sulphate (anhydrous)	1.73 per cent.
Sodium sulphate (anhydrous)	1.79 ,,
Sodium chloride...	0.16 ,,
Sodium bicarbonate	0.18 ,,
Potassium and calcium salts	traces

The above figures agree closely with the published analyses of Hunyadi-Janos, and bear out the makers' claim that the composition and osmotic value of the two waters are practically identical. It consequently follows that the therapeutical properties of Osmos are also equivalent to those of Hunyadi-Janos, and that it can safely be recommended for all purposes for which the Hungarian water was formerly employed. The taste is not unpleasant.

THE TEACHING OF OBSTETRICS AND GYNAECOLOGY.[1]

(*Concluded from p. 279.*)

E.—The Bases of an Efficient Training in Midwifery and Gynaecology.

1. Owing to their intimate relationships these subjects should be taught, as is the British practice, by the same teachers, and the training of students in them should run concurrently.

2. Midwifery training should be extended in one direction (ante-natally) so as to comprise a fuller study of the whole course and management of pregnancy, and in the other (post-natally) so as to comprise the management of the whole nursing period and the management of the infant. Reference has been already made to the opportunities offered by the maternity and infant welfare centres for instruction in the care of the nursing mother, in infant feeding, and in the general management of the infant. The work of these centres is the natural sequence to the care of pregnancy and labour, and some acquaintance with it is essential if the application of preventive medicine to maternity and childhood is to be properly realized by the student. The co-operation of the paediatrician in this work is very desirable.

3. The management of labour should be taught as a surgical procedure; this can only be done in hospital, under surgical conditions, with adequate equipment and a highly trained staff of teachers. Owing to the peculiar nature of the work the senior officers upon whom the ultimate responsibility rests should be resident in the hospital, or should be available at any time their presence may be required.

4. There should be adequate hospital accommodation in all large centres of population to allow of all serious obstetric emergencies being immediately admitted for treatment; this is recognized as being necessary in respect of surgical conditions, and it is equally necessary in respect of midwifery.

5. From (4) it follows that the number of beds available for cases of midwifery must be very largely increased, allowing due provision to be made for the emergencies which so frequently arise.

6. Medical students and midwives cannot be suitably trained in the same institution unless in separate classes.

7. The proportion of beds allotted to midwifery and gynaecology is quite inadequate to the importance of the subject from the point of view of the public health; the number should bear a definite proportion to the total number of beds in the hospital; at the present time the average proportion is less than one-twentieth of the total in the twelve hospitals shown in Appendix B; this proportion should be increased to at least one-tenth. A considerable number of gynaecological cases are dealt with by the surgeons in the surgical wards, which are largely lost for teaching purposes.

8. The requirements of the examining bodies in both subjects should be strengthened so as to enforce (*a*) an adequate period of clinical training during which the student should be allowed to undertake no other work, (*b*) the provision of suitably arranged and sufficiently large facilities for clinical work.

9. In the system of training the following methods of instruction should be followed, their relative importance being in the order named.

(*a*) Clinical demonstrations upon patients in out-patient departments, wards, operation theatre, and labour wards.
(*b*) Demonstrations of specimens, fresh and preserved.
(*c*) Lecture demonstrations, at which surgical anatomy, the construction and use of instruments, the details of operative procedures, etc., can be shown in detail. Under this head would be included the present practical midwifery lectures.
(*d*) Systematic lectures, which should be limited in number, and concerned with principles rather than details.

10. The extent to which the student's training is influenced by the nature of the qualifying examination must not be overlooked, and the present system of examination in midwifery and gynaecology urgently needs amendment. The examination of the Conjoint Board, for example, is very unequal owing to the large number of examiners from different teaching hospitals in London and from provincial universities, who often set widely different standards, and the absence of a clinical examination in both subjects leads the student to neglect his clinical work and to underrate its importance.

The examining authorities should be urged, whenever it is possible, to recognize the principle that the student should be examined by his own teacher with a second examiner as assessor, and that clinical examinations should be accorded the same importance as in the case of medicine and surgery.

F.—Sketch of a Satisfactory Scheme.

I. The inadequacy of the clinical facilities in the existing hospitals, not only for teaching midwifery but also for the treatment of pregnant women and women in labour, has been already emphasized. It is not possible for the existing hospitals to allot the number of beds to midwifery which are required, in view of the deficiency of their present accommodation in all departments, as is shown by the long waiting lists which are found at all hospitals. Before long additional hospital space will therefore have to be provided to meet the requirements of the community, and full use for teaching purposes should be made of this new provision.

II. There are two different lines upon which fully equipped departments of adequate size for the teaching of midwifery and gynaecology could be organized:

(*a*) Certain of the larger teaching hospitals might provide for a great expansion of their existing midwifery wards, from which, with their associated gynaecological, pathological, and other services, a midwifery department could be formed capable of providing for the training, not only of their own students, but also, if necessary, of students from other hospitals where there is no midwifery ward in existence.
(*b*) New centres might be founded in outlying districts where there is at present no adequate maternity service. These new centres, though not in proximity to existing teaching hospitals, might be affiliated to certain of them which were unable to develop fully equipped maternity departments of their own, and which might send their students to the new centre for training. These new centres could be made use of for training not only students, but also post-graduates, and in addition they would afford much needed facilities for research.

In the case of both (*a*) and (*b*) a small number of midwives could also be trained for service in the institutions.

III. *Departments* developed out of existing maternity wards at a teaching hospital (Subsection II*a*) ought to provide a minimum of seventy-five beds, of which fifty would be for midwifery and twenty-five for gynaecology. Of the midwifery beds a certain number would be allocated to ante-natal conditions and puerperal complications. "Departments" developed in connexion with the larger teaching hospitals, which have greater facilities for expansion, might exceed these figures if students from other hospitals were received in addition to their own.

In the opinion of the Committee a midwifery department containing less than fifty beds cannot be satisfactory for the teaching of students, as it will not afford them an opportunity of seeing all the ordinary difficulties and complications of pregnancy and labour during the limited period of time in which they are attending the department. It would be impossible for every one of the existing teaching hospitals to supply such a large number of beds for midwifery. So it is obvious that under this scheme some form of concentration would be necessary—that is, that some of the hospitals should provide midwifery departments which would be attended by their own students, and, in addition, by students from the hospitals which were unable to provide such departments.

IV. Newly founded *Centres* (Subsection II*b*) would probably be much larger than the "departments," on account of the urgent public need which exists for increased hospital accommodation for midwifery cases. They could provide about two hundred beds each, of which roughly twenty would be for ante-natal conditions, one hundred for labour, twenty for infective cases (isolation), and sixty for gynaecological cases. The provision of a certain number of such *centres* as these, in selected outlying districts, would form a most valuable contribution to the provision of an efficient maternity service for London. It is obviously of great importance that full use for teaching purposes should be made of such new *centres* when they come into existence.

The provision of a proportion of gynaecological beds in the *centre* is an essential feature of the scheme. It would be needed to meet the medical requirements of the district, and, further, it would allow the student to do his practical

[1] Report by a committee appointed by the Council of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine.

work in the two subjects together and under the same teachers; knowledge of either subject is incomplete without the other, and the student learns them together much more readily than separately.

V. The medical staff required to work the "Centre" also involves a new departure. Reasons have been advanced for the view that a much larger proportion of the teaching in the conduct of normal and abnormal labour should be given by senior obstetric officers than is the case at present. This involves senior officers being either in residence at the Centre or on duty during certain definite hours of the day and night. Such services could not be required of them without payment upon an adequate scale. Next to them would be required assistants in residence of the status of the present registrar or tutor, whose whole time would be required, and who also must be adequately paid.

VI. "Departments" developing out of existing midwifery wards at teaching hospitals (Subsection II*a*) would probably be best staffed as follows:

1. A staff of two or more *Visiting Obstetric Physicians* (or surgeons) who would, in rotation, undertake the duties appertaining to the Director or Chief of the department for definite periods, as might be most suitable.
2. A resident "*Chef de Clinique*," appointed for a term of years, who must be a whole-time officer, and who would have charge of the department under the visiting staff. His professional status should be above that of an obstetric registrar—that is, comparable with that of a resident assistant surgeon or a resident assistant physician.
3. One or two resident *Senior Assistants* of the status of a registrar, who would direct the students personally in their work in the labour wards, the lying-in wards, and in the district, and a number of resident *Assistants* (house-surgeons). These would also be whole-time officers.

Departments such as these would probably eventually develop into "units" with professors of midwifery and gynaecology, on the lines of the units of medicine and surgery which are about to be founded. Such professors of midwifery and gynaecology should not be "whole-time" professors, but should remain in touch with consulting practice.

VII. New centres formed in outlying districts (Subsection II*b*) would probably be best worked by

1. A resident *Director* or *Superintendent*, who might be appointed for a term of say five to seven years. He would be of the status of an obstetric physician at the teaching hospital. He would be responsible for the control of the work of the institution generally, and would take a large share in operative work, in teaching, and in research. The Director should not be a "whole-time" officer, but should remain in touch with consulting practice.
2. One or more resident *Assistant Directors*.
3. Working under (1) and (2) a sufficient number of resident *Assistants* to direct the students personally in their work in the labour wards, the lying-in wards, the gynaecological wards, and in the district. They would also be responsible for the clinical pathology of the centre, and would carry out research under the supervision of the Director and the Assistant Director.

These appointments when first instituted would afford an opportunity for the teaching hospitals affiliated to the centre to be represented upon its teaching staff, and thus keep the students in touch with their own hospital staff.

It must be borne in mind that outlying districts which are in need of a midwifery hospital service require general hospitals as well; these would, no doubt, eventually be established, and thus provide for the association of pathological and other services with the new centres.

Such schemes would involve such heavy expenditure that they could not be put into operation without support from the State.

VIII. In the opinion of the Committee the requirements of the students' training can only be completely met under the scheme of new "Centres," on account of the necessity which has been already emphasized of the senior teachers taking a considerably larger part than at present in the work of clinical instruction. Under the alternative scheme of "departments" at existing teaching hospitals the senior teachers would, in effect, not take any larger part in teaching than they do now.

IX. Students belonging to hospitals with a fully equipped midwifery department (Subsection II*a*) should be attached to the department for a period of four months, during which their whole time would be devoted to midwifery and gynaecology, and they would be in residence for, at any rate, a part of the time. Students from other hospitals would probably come to the department for practical midwifery only; they would be in residence for at least one month. In the second month they would attend their cases in the district of their own hospital under the supervision of their own medical staff, and would, in addition, continue to attend the department for clinical teaching, operations, etc. These students would receive their gynaecological training at their own hospitals as at present.

X. The midwifery districts of the teaching hospitals would therefore be continued, for it is of great importance that the student should have experience of district work during the latter part of his training, as long as it is under proper supervision. In the case of certain hospitals the district could not provide sufficient cases to enable each student to attend the required number. Arrangements could perhaps be made for a proportion of the students from these hospitals to do their district work elsewhere—that is, in the district of another hospital.

XI. Each teaching hospital should provide means of properly supervising its students in their work in the district. Under the present system the assistant obstetric physician is in nominal charge of this work, with the assistance of the registrar and the resident obstetric officer. The control of the assistant obstetric physician should be made effective under the rules of each hospital, and the duties of the registrar should include the instruction of each student in the management of his district cases during the puerperium.

XII. Students attending a new Centre (Subsection II*b*) would be attached to it for a period of four months during which their whole time would be devoted to midwifery and gynaecology, and they would be in residence for, at any rate, a part of that time.

G.—First Steps to be Taken.

I. While the Committee are of opinion that eventually the foundation of new "Centres" will be necessary for the proper training of students in midwifery and gynaecology, it is recognized that it will probably be some time before such a scheme could be put into operation. The necessity of taking steps promptly to effect the most urgently needed improvements is, however, obvious, and the formation of "Departments" at existing teaching hospitals (F, Subsection II*a*) could be put into operation without prejudice to the later formation of new "Centres." In this way the two schemes could be developed side by side, and there is no doubt that the one found by experience to be best suited to the special requirements of London would eventually prevail.

II. The development of fully equipped "Departments" at existing teaching hospitals being the easier part of the scheme to put into operation, it might prove practicable to make a start forthwith. This would be preferable to an attempt by all the hospitals to open midwifery wards of about the same size as the existing ones, which would result in too much dispersal of clinical material, and dissipation of effort on the part of the teachers. Further, wards of twenty beds or under are too small for the purposes required, which include beds for ante-natal and puerperal cases, while large wards would not be fully utilized at the smaller teaching hospitals except under some system of grouping teachers and students from different schools together.

III. It is of great importance that a "Department" of the size indicated, formed at a teaching hospital, should in addition to their own students receive a certain number of students from one or more hospitals which have no midwifery ward. If this plan were carried out, the existing inequality of the training in practical midwifery in London which results from the absence of a midwifery ward in many teaching hospitals would be to a great extent obliterated, and the general level of midwifery training would be at once appreciably raised.

IV. As hospitals without a fully equipped midwifery department would continue to train their own students in gynaecology as at present, an immediate increase in the number of gynaecological beds at these hospitals is urgently required for the reasons which have been already stated.

V. The first steps to be taken would probably be to inquire into the following points:

(*a*) The possibility of the hospital designated being able to allot the required number of beds to midwifery.
(*b*) The willingness of other hospitals to make use of the "Department" for training their students.
(*c*) Suitable financial arrangements being made between the affiliated hospitals, assisted by a Government grant.

VI. Another development which might be put into immediate operation is the much greater utilization of ante-natal and infant welfare clinics for the instruction of students.

VII. It is also very desirable that all teaching hospitals should as far as possible compel their students to give up a minimum of four months solely to midwifery and gynaecology, and the examining bodies should be moved to alter their requirements in this sense.

In considering the length of time the student should devote to the subject, it must be recollected that the Committee propose that midwifery training should include work at ante-natal clinics and infant welfare centres. The latter work especially will in the future form so important a part of the duties of the practitioner of medicine that the examining bodies must make some provision for it in the curriculum. Obviously the best time is immediately after the study of obstetrics. There is the further advantage in making the study of the infant concurrent with or immediately succeeding the study of midwifery that the two together afford a concrete example of the methods of preventive medicine applied to the health of the community which must impress itself on the student. Experience may show that four months devoted solely to midwifery, gynaecology, and the study of the infant would not be long enough for the importance of these subjects in the health service of the community, and some extension would be then required.

H.—THE TEACHING OF GRADUATES.

Midwifery.

1. There is no doubt that it is very desirable that provision should be made for the clinical instruction of graduates in midwifery; there is a considerable demand for it now, and this demand is likely to be greater in the future.

2. The essential conditions for the practical instruction of graduates in midwifery are: (*a*) An institution able to receive large numbers of cases, and making special provision for difficult and operative labours; (*b*) resident teachers of status and experience.

3. The case of the medical student is, in our opinion, more urgent than that of the graduate and should be dealt with first. When large central institutions on the lines indicated above have been set up, there will be no difficulty, in addition to meeting the needs of the students, to provide the clinical material, the teachers, and the laboratory facilities which are requisite for the instruction of graduates.

4. Under the conditions which exist at present it is practically impossible to organize post-graduate instruction upon satisfactory lines.

Gynaecology.

1. The abundant clinical material of the special hospitals for women is largely lost for teaching purposes under the present conditions. A certain number of clinical assistants (qualified) are usually attached to them who attend out-patients and operations, but there are no systematic arrangements for clinical teaching upon a considerable scale.

2. These hospitals would be of invaluable service in providing clinical teaching for graduates, and this appears to be their proper educational sphere.

3. The three principal hospitals (Chelsea Hospital for Women, Samaritan Free Hospital, Soho Hospital) should be affiliated, so that graduates taking a course would be entitled to follow the practice of all of them. In this way graduates taking a course of clinical gynaecology could be continuously employed in out-patient departments, wards, operating theatres, and laboratories.

4. Courses of instruction lasting for six to eight weeks should be provided—namely, (*a*) clinical gynaecology; (*b*) operative gynaecology; (*c*) gynaecological pathology.

Clinical Gynaecology.—Demonstrations on selected cases should be given in the in-patient and out-patient departments, and the senior and junior members of the staff should take part in the teaching in both departments. Facilities should be afforded to each graduate to acquire a knowledge of the bi-manual methods of examination by repeated practice while the patient is anaesthetized; to acquire a knowledge of the instruments, appliances, etc., used in the practice of gynaecology. Case taking cards should be provided in both in-patient and out-patient departments.

Gynaecological Pathology.—Instruction should be given in (*a*) recent specimens, (*b*) microscopic preparation, (*c*) bacteriology, (*d*) specimens in the Museum of the Royal College of Surgeons.

5. Advanced courses might be arranged for those who desire to specialize in gynaecology, and opportunities afforded them both in the wards and in the laboratory for research.

6. Clinical assistantships might still be available for those who, having taken a post-graduate course, desire to continue their work at the hospital.

PROPHYLAXIS AGAINST VENEREAL DISEASE.

MEMORANDUM BY THE COMMITTEE ON INFECTIOUS DISEASES.

A NOTE on prophylaxis against venereal disease* has been signed by Major Waldorf Astor, M.P., chairman of the Interdepartmental Committee on Infectious Diseases in Connexion with Demobilization. The memorandum is addressed to Dr. Christopher Addison, Minister of Health, who, in January last, as President of the Local Government Board, appointed that committee to consider concerted measures for mitigating the dangers of the dissemination of tropical and other diseases among the civil population from the process of demobilization and the abnormal shifting of population during the restoration of industry to peace conditions. The terms of reference of the committee were:

> To consider the possible risks of introduction of infectious and parasitical conditions into the country in the course of demobilization from the various fronts, and to make recommendations for the purpose of securing close and effective co-operation in administrative measures for dealing with these conditions on the naval and military (including the Air Service) and the civil side.

The membership of the committee is indicated only in the most general terms, and no names of members are given other than those of its chairman and its secretary, Dr. Seymour. The committee held that the objects coming within the terms of reference were:

> (i) To institute inquiry and to make recommendations with a view to preventing the spread of infection on demobilization. (ii) To consider and advise as to the co-ordination of the administrative activities of the departments concerned and to render assistance by the interchange of information. (iii) To consider whether any special methods of preventing and treating various infective conditions might be required in consequence of demobilization, or of the occurrence from time to time of epidemics or other disturbing factors in the civil community.

In view of the public interest in the subject the committee thought it right to present forthwith to the Minister of Health a note on the prophylaxis of venereal disease, reserving for subsequent statements any recommendations they may have to make with regard to this or other diseases. The present memorandum is concerned mainly with the question of making available to the civil community certain methods of prophylaxis (known as the "packet" system) which have been publicly commended as having been successful among combatants during the war. The committee sought to ascertain whether the claims of the advocates of such methods have been made good; first, on the ground of indisputable and substantial benefit in the services where they have been adopted; and, secondly, on the ground that, if proved efficacious in the services, they may be adjudged applicable and appropriate to the civil community. The committee excluded for the purposes of this memorandum the whole subject of the incidence of venereal diseases generally, and the desirability or otherwise of introducing compulsory notification. Nor does it touch on the provision of skilled treatment after exposure to risk of infection. The one issue raised is the advisability or otherwise of special encouragement being given officially by the Government to the sale of "packets," that is, the provision, before exposure to infection, of means of prophylaxis for use by the individual, whether before or after such exposure.

Invitations were given to medical representatives especially qualified from professional experience, as well

* [Cmd. 322.] H.M. Stationery Office. (3d. net.)

as others who have taken an active interest in the question, to meet the committee or furnish it with memoranda of their views. Among the witnesses were Colonels J. G. Adami, F.R.S., and J. A. Amyot, C.A.M.C.; Lieut.-Colonels G. Raffan and Sir James Barrett, A.A.M.C.; Major Falconer Brown, N.Z.M.C.; Colonels Whaley, Young, and Snow, U.S.M.C.; Major C. F. White, R.A.M.C.; Sir Bryan Donkin, Sir G. Archdall Reid, Sir Bertrand Dawson, Sir William Osler, Lady Barrett, M.D., Dr. Agnes Savill, and Dr. Morna Rawlins. A brief abstract of the data laid before the committee by these witnesses is appended to the report. The body of the memorandum gives only the main conclusions of the committee on the point under consideration.

The committee is satisfied that while certain drugs and medical preparations may be relied upon to remove or destroy venereal infection, if applied by skilled attendants very soon after exposure, such satisfactory results cannot be secured if the preparations are used unskilfully or too long after exposure. In the committee's view, experience indicates that—

> However careful the instruction, and however scientifically effective the prophylactic in itself might be if used under proper conditions, it frequently fails to protect when applied by the individual, even when this self-application is supported later by additional skilled treatment. The consumption of alcoholic liquors, carelessness, natural excitement, forgetfulness, or ignorance, has been the cause of numerous failures, even amongst those troops where the use of such prophylactic measures has been most efficiently organized and taught.

Figures showing the incidence of venereal disease amongst Canadian, Australian, British, and American troops, and also in the British navy, are set out in tabular form. In a summary of its examination of these figures the committee recognizes that there is much that they cannot prove and that severe limitations govern deductions to be drawn from them. The figures are few and open to certain statistical fallacies (due to differences of age, marriage, occupation, social factors, and so forth), which bear a much closer relation to the incidence of venereal disease than to that of other infectious diseases. They are, however, the only figures of their kind available. In the committee's opinion they show, so far as they go, that there was an almost continuous fall in the venereal rate in the British army and navy during a long period before the war; throughout that period there was no organized system of any form of prophylaxis, but continuous improvement was taking place in social and other conditions affecting the incidence of these diseases. The second inference is that in those forces which during the war employed the prophylactic packet system most energetically, no proportionate reduction was brought about in the infection rate.

After pointing out that certain conditions of war exert an effect on human desire and action which tends to create an artificially high rate of exposure to risk of venereal disease in the services during the war, the committee says:

> Under any mechanical system which does not afford absolute protection, the venereal incidence must be proportionate to the risks taken, and it must be borne in mind that the introduction of such a mechanical system may easily, by its promise of protection, lead to an increase in the number of exposures.

Again—

> Many of those who wish the Government to utilize in peace time for the civil population methods which have been tried among the forces in war, have not sufficiently appreciated the fundamental differences between the two groups, or between the conditions of war and peace; nor have they been aware of the comparative failure of packets even in a disciplined force. The civil authorities cannot command or control the general population (men and women) as officers can properly and legitimately control enlisted men. . . . It is also the direct interest of the officers in charge of men to keep the venereal rate amongst them as low as possible. There can be nothing in the civil population analogous to this pressure of responsibility and discipline.

While there are no civil peace figures available, the committee holds that the assumption that the present incidence of venereal disease in the army is greater than that among a similar number of men in civil life is not established.

In regard to the general experience of prophylactics distributed before exposure to infection, as prevailing in the various services, the committee has come to the following conclusions:

(1) That certain drugs, if properly applied, are efficacious in preventing venereal disease.

(2) That if these drugs are not properly or skilfully applied their efficacy cannot be relied upon.

(3) That the issue of prophylactic "packets" tends to give rise to a false sense of security, and thus to encourage the taking of risks which would not be otherwise incurred, and the neglect of facilities for early treatment when available; and, in certain circumstances, might even increase the spread of disease.

(4) That in spite of the most careful instruction, the grant or issue of "packets" results in many an individual using them for self-treatment after he finds himself infected. They are not intended for this purpose, and are ineffective when so used. Drugs which are accredited with the power of preventing diseases are very frequently accepted by the public as useful in their treatment. Their use for the treatment of developed disease may be definitely harmful, since they delay diagnosis and the application of proper treatment at a time when promptitude is of the very first importance to its success.

(5) That where preventive treatment is provided by a skilled attendant after exposure to infection, the results are better than when the same measures are taken by the individual affected, even after the most careful instruction.

(6) That the excessive consumption of alcoholic liquors not only diminishes the sense of responsibility, but also tends to prevent the proper use of prophylactics and to delay the individual's application for skilled treatment.

(7) That the most carefully organized packet system, such as exists now in the army (a system which would be unattainable in the civil community), has not produced such a general reduction in the incidence of venereal disease as to counteract the disadvantages mentioned in these conclusions.

(8) That the organization of recreation and social amenities has assisted in the reduction of the incidence of venereal diseases in the services before the war, and has also assisted in preventing that increase in the incidence of these diseases which, from past experience, might have been anticipated during the war.

(9) That energy should not be dissipated on measures of doubtful value, but concentrated rather on wise propaganda and the provision of early, prompt, and skilled treatment in order to diminish the prevalence of these diseases. It should be recognized that failure to cure these diseases is one of the main causes of their prevalence, and that failure to cure, in the most skilled hands, results largely from failure to treat them in their early stages.

All the representatives of the different departments who assisted in the committee's deliberations record their unanimous view that the true safeguard against these diseases is individual continence and a high standard of moral life. To this the committee adds that it set out to examine the evidence placed before it from the scientific and the medical point of view, and strictly in this spirit it desires to state its opinion that the irreplaceable effect of the moral factor has been too often neglected or forgotten.

In conclusion, the committee is not satisfied that sufficient evidence has been put before it of the beneficial results gained by the distribution of prophylactic packets in various Forces to prove the value of the system or to justify the committee in recommending its official encouragement among the civil population.

> "Unquestionably there have been many individual cases which appear to afford positive evidence in favour of a system of distribution of such prophylactics before exposure to infection; but the volume of such evidence is too small and too exceptional, and the instances of its failure, even under favourable circumstances, are too numerous to allow of any other conclusion than that, in view of the considerations mentioned above, and of the administrative and social difficulties involved, the official application of a packet system to the civil community is neither desirable nor practicable."

The seventeen appendices to the memorandum include abstracts of the evidence submitted by medical women on prophylaxis among women, and of the evidence given to the committee by Sir Archdall Reid.

A MEDICAL faculty has been established at Vladivostok. It is intended to form the nucleus of a fully equipped university which it is hoped will come into existence in the near future. The projectors hope to obtain financial support from foreign countries, particularly the United States, Canada, and Japan.

MADAME BROUARDEL, widow of the distinguished professor of forensic medicine in the University of Paris, is well known for her skill as a painter in water colours. Some time ago she organized two lotteries of these works of art for the benefit of the fund for the assistance of the families of medical men who lost their lives in the war. The amount realized was £1,600.

British Medical Journal.

SATURDAY, SEPTEMBER 13TH, 1919.

THE TEACHING OF OBSTETRICS AND GYNAECOLOGY IN LONDON.

THE report to the Council of the Obstetrical and Gynaecological Section of the Royal Society of Medicine on the teaching of obstetrics and gynaecology in London, the second portion of which appears in our columns this week,[1] marks the completion of another stage in a needed reform. It will be within the recollection of our readers that the subject was first raised at a meeting of the Section last winter, when several papers were read placing the matter before the meeting from different points of view. The meeting was remarkable for the comparative unanimity with which the London teachers confessed their dissatisfaction with the existing state of affairs. The remedy was, however, less obvious than the disease, and it was ultimately decided by the Council to refer the whole subject to a special committee for inquiry and report as to the alterations needed to render the teaching more efficient. The report shows that the Committee has done its work with the most praiseworthy thoroughness and promptitude, and its conclusions and recommendations deserve careful study, not only by the profession but by the public, whose interests are closely and directly affected.

The greatest weakness is apparent in regard to the practical or clinical teaching of midwifery. Only four London hospitals have maternity wards open to the teaching of medical students. In these the students obtain some sound practical experience and teaching following, or concurrent with, their systematic instruction before they go out into the district to attend the set number of labours required by the regulations of the General Medical Council. The students of the other hospitals get no teaching of the actual conduct of labour in their own schools, but pass straight from the lecture-room to the extern practice of the hospital, and are expected to tackle their first confinements with, or as often as not without, the assistance of the resident obstetrical officer—a junior officer with little experience either of obstetrics or of teaching. In other words, the student essays to conduct a labour *secundum artem* without having even seen a delivery before; and he is left to pick up for himself such practical experience as he can, and at the most impressionable stage of his whole career, in circumstances which make it almost impossible for him to carry out adequate antiseptic technique, even if he has more than a hazy book knowledge of what that means. The only alternative to this process of enlightenment is to "attend" the requisite number of cases at one of the large lying-in hospitals, which means that he looks on at a number of deliveries, and, if he is fortunate, may be allowed to deliver one or two patients under the supervision of the resident medical officer or the sister. The latter plan has at least the advantage that he is given an opportunity of seeing how a labour ought to be conducted.

In this respect the teaching in London would appear to be, so far as our knowledge goes, behind that of every other school in the United Kingdom. In Edinburgh, Dublin, and the provincial schools the clinical teaching is comparable to that given in the London hospitals with maternity wards open to students—that is to say, the students attend the maternity hospitals for a month or more prior to "taking out" their cases in the extern department. It is an open question whether the system of attending cases in houses where proper technique is next to impossible does not directly undermine much of the teaching as to the importance of surgical methods and scrupulous antisepsis given in the lectures and in the hospitals. This is a question which the teachers of obstetrics and the General Medical Council will have to face before long. But so long as the number of beds available for midwifery remains as limited as it is at present, there is no other means of meeting the existing requirements of the General Medical Council.

But the "education" of the students at those London hospitals which provide no maternity beds for their instruction will be a revelation to many. The Committee describes the effects of such perfunctory teaching in language which is almost too moderate and restrained. "A not unfair analogy would be for surgeons to teach students the technique of abdominal operations under conditions where they would be deprived of adequate light, ventilation, and the means of cleanliness." The analogy would be more complete if they pictured the student setting out to perform an abdominal operation in such conditions after having listened to some systematic teaching on the subject, but without ever having seen an abdomen opened. "Students who are taught thus, under makeshift conditions, will absorb the impression that careful and exact precautionary measures are unnecessary. The effect of such an impression upon their future work in private practice can only be disastrous, and may be related to the incidence of puerperal fever in the country as a whole." We should have been inclined to say "must be" so related.

Than this portion of the report nothing could be a more illuminating commentary on the clamant need for the reform urged by Mr. Bonney at a subsequent meeting of the Section, when he pressed for greater recognition of the essentially surgical nature of the whole practice of midwifery. If practitioners so trained are not a danger to the community, it is no thanks to their "practical teaching."

The Committee draws attention to an important point when it says that "practitioners do not consider it necessary to obtain the services of a specialist or of a hospital in obstetrical emergencies to the same extent as they undoubtedly do in the case of general surgery." This is, we believe, a universal experience. The general practitioner tends to regard himself as an obstetrical specialist, and feels, perhaps, that to call in a hospital specialist is a confession of weakness or failure. "Muddling through" is as prevalent in obstetric practice as in the purlieus of Whitehall, and it is legitimate to trace it in some measure to the perfunctory training given in practical midwifery. In many areas the lack of hospital accommodation, and almost everywhere the lack of public means of transporting a patient to hospital, confirm the practitioner in his attitude on this point.

The defects in the present training in gynaecology are not on the same plane, nor are they peculiar to London. There is an inadequate amount of time given to the subject and an inadequate number of beds allotted to it. Unquestionably this needs correction, but inasmuch as the gynaecological affections most commonly met in general practice are the sequels of obstetrical conditions, the improvement of the

[1] The first portion of the report was printed in the BRITISH MEDICAL JOURNAL of August 30th, p. 276.

practical training in midwifery is obviously the first desideratum.

The Committee's statement of the bases of an efficient training should be carefully studied as an authoritative pronouncement. It is interesting to observe, as a sidelight on the slowness of progress in London, that they still have to repeat the plea, put forward by Lister forty years ago or more after his experience of its advantages in Scotland, that one of a student's examiners should be his own teacher.

The gist of the changes recommended by the Committee lies in the provision of more hospital accommodation for midwifery and gynaecology under experienced resident officers and available for the direct personal instruction of students. They also recommend that the student should devote his whole time to the combined subjects throughout a period of at least four months, during part of which he should be in residence in hospital and so be available day and night. Only after a thorough practical training in hospital would the student go out into the district. All the recommendations may not prove practicable, but the first step—and it is an urgently necessary one—is the provision of maternity wards in connexion with every teaching hospital. Later, "centres" may be built in populous districts, where combined teaching can be started, but any such scheme will require State subsidy and will have to be linked up with the schemes for health centres, which have figured in the imagination and hopes of all who have considered the possible future development of the Ministry of Health.

MENDERS OF THE MAIMED.

THE war with Germany is ended, but the war carried on by Medicine and Surgery against the results of war itself is still being waged, and will need to be continued, though on a diminishing scale, for a long time to come. We have reason to be almost as proud of our country's achievements in the fight against disease and deformity as we are of the countless gallant feats of arms, and of the indomitable resolution of our sailors and soldiers. The triumphs of prophylactic medicine are none the less tremendous because they are in a sense negative, silent, and unseen. The triumphs of preventive and curative surgery, and especially of that branch which has become known as "war orthopaedics," are more obvious, although the nakedness of the title "Military Orthopaedic" Hospital has been covered by scandalized surgical Mrs. Grundys under the decent veil of "Special Surgical" Hospital.

Shortly after the beginning of the war we published a series of articles on orthopaedic surgery by Mr. (now Sir Robert) Jones, which must have brought home to many readers the importance and the wide scope of the specialty as practised by a master of his art. This publication must have prepared the minds of the medical world to appreciate and approve the important part soon to be played by military orthopaedics, which quickly established a claim to recognition as a most important department of war surgery.

Who were the men and what manner of men were they who forged the weapons so successfully wielded in the military orthopaedic hospitals? In the winter of 1917–18 Professor Arthur Keith set out to answer these questions in a series of lectures; of five of them detailed abstracts appeared in our columns, and in a recently published volume the whole series is printed *in extenso* (see page 346). Whoever has the good fortune to read the lectures cannot fail to profit thereby and, if of British birth, to have his pride in the scientific and surgical achievements of his countrymen greatly enhanced. For many of the *Menders of the Maimed*—to use Professor Keith's title—and not the least worthy of them, have been our fellow-countrymen. After the Frenchman Andry had coined the word "orthopaedia" and the Hanoverian Stromeyer (a subject of King George III and King William IV) had introduced the subcutaneous method, the Englishman, W. J. Little, brought orthopaedic surgery into England and advanced our knowledge of deformities and their treatment.

But just as the rules of Christian ethics have been observed by some who did not profess and call themselves Christians, so, as Professor Keith shows, have the true principles of orthopaedic surgery been applied by some who did not think of calling themselves orthopaedic surgeons. John Hunter's acute mind led him along the right road as far as his investigations into the matter went, and much of the work of Hilton was orthopaedic in the best sense, while the researches of Marshall Hall, of Goodsir, of Redfern and Macewen and others have contributed much to the success of the methods of to-day. One surgeon, however, stands out head and shoulders above his contemporaries in the surgery of bones and joints, to which he made many valuable contributions, and in which his principles govern so much of present-day practice. The name of Hugh Owen Thomas must always be associated with the history and the progress of orthopaedic surgery; and although it might be said of him as of Wren, "Si monumentum requiris, circumspice," we are glad to know that a movement is now on foot to commemorate him in a useful and appropriate manner. Thomas had thoroughly studied the methods of bonesetters, but his patient study and intimate knowledge of the treatment of all sorts of deformities convinced him that a surgeon properly trained in what may be called industrial surgery had nothing to learn from the bonesetter, Sir James Paget's dictum to the contrary notwithstanding.

Many of the menders of the maimed of whom Professor Keith has written would have been surprised to find the treatment of broken bones included in the scope of orthopaedic surgery, yet the improved treatment of fractures is one of the great results of military orthopaedic work during the war; and it is to be hoped that the wider diffusion of a knowledge of this subject will result in more attention being given to it in our medical schools, and in much more successful treatment of the injuries of civil life, so that the advocates of open operations as well as the advocates of careful non-operative treatment as exemplified in the practice of Thomas may no longer be justified in stigmatizing the usual treatment of many fractures as a "disgrace to surgery."

THE NEEDS OF THE INDIAN MEDICAL SERVICE.

IN our Educational Number we published last week at page 331, under the heading "Indian Medical Service," an announcement by the Secretary of State for India that 204 medical men are urgently needed to fill vacancies in the Indian Medical Service, and that 136 of these commissions would be given to Europeans. In the SUPPLEMENT this week will be found some details as to the conditions of employment; the new rates of pay were given in the JOURNAL of August 16th (p. 224). There can be no doubt that the urgency is very great. As we have pointed out in recent issues, officers of the I.M.S. are being detained in India long after their leave is due because the service is so depleted that reliefs cannot be found. It will be remembered that the British Medical Association has for some time been in negotiation with the

Secretary of State for India as to the relief of the grievances of which the Indian Medical Service has for long justly complained. Mr. Montagu gave a definite promise that these grievances would be removed; and as regards the chief one—namely, the inadequacy of remuneration—figures published show that the promise made to increase the grade pay by 33⅓ per cent. has been kept. It is hoped that the Indian Government is about to remedy other grievances and that a clear pronouncement will no longer be delayed. The Naval and Military Committee of the Association at its meeting on September 16th will consider various criticisms of the new rates of pay which have been put forward by present members of the I.M.S., and will, without doubt, press upon the Secretary of State the necessity of satisfying the profession that his assurances have been fulfilled in spirit as well as in letter. In the meantime it must be assumed that the promises publicly made by Mr. Montagu will be kept, and that medical men of the right type—young, energetic, and keen on their profession—may be recommended to enter the Service which in the past has offered so fine a career.

SERUM DIAGNOSIS OF SYPHILIS.

THE use that was made by Wassermann and his collaborators of the reaction of Bordet and Gengou and the scant acknowledgement of the work of these brilliant investigators is now an old story. It is therefore a pleasure to record some recent observations by Bordet and Ruelens[1] in the technique of what is nowadays, perhaps, the most frequently used clinical laboratory reaction. Theoretically, a good antigen for the diagnosis of syphilis ought to have the following qualities: (1) It should be a very specific reagent—that is to say, it should not absorb complement by itself or in presence of a non-syphilitic serum, and it should manifest to a high degree the absorptive power in presence of syphilitic serum; (2) in emulsion it should be an almost transparent fluid, so that in mixtures it may not obscure haemolysis and render the readings difficult; (3) it should keep indefinitely without undergoing alteration; (4) it should be easy of preparation so that experimenters may have a uniform product to deal with. Bordet and Ruelens claim that their antigen, which they have used in a large number of tests during the last four years, fulfils all these requirements of stability, purity, and specificity. The muscle of calf's heart is minced, not necessarily very finely, care being taken not to express the juices. To 100 grams of this, in a flask, are added 125 c.cm. of 94 per cent. alcohol and the mixture shaken. Here the purpose is merely to coagulate the proteins and not to dissolve the fatty substances or lipoids; and as the alcohol is in comparatively small proportion and is immediately diluted by the tissue juice, it exerts practically no dissolving power on the lipoids. The mixture is allowed to stand at room temperature for several days and then filtered, and the residue is spread in a crystallizer and put in the incubator for a day. The tissue dries very quickly without undergoing any change, and is then treated in a flask with 200 c.cm. of acetone at a temperature of 18° to 20° C. for about a week, after which it is filtered. A further treatment of the tissue with fresh acetone for another day serves to rid it of all traces of acetone-soluble substances. It is now filtered and is completely deprived of acetone in a few hours in the incubator. Finally the tissue is put in a flask with 200 c.cm. of 94 per cent. alcohol and kept for eight to ten days at a temperature of about 20°. The fluid thus obtained, when filtered, is the antigen. It has a yellow golden tint, and though at very low temperatures it may become slightly opaque, with gentle heat it completely clears again. This alcoholic solution keeps unaltered indefinitely. When about to perform the tests, 0.5 c.cm. of the alcoholic solution is measured out in a large watch-glass and rapidly evaporated in the incubator, and to the minute quantity of yellow residue thus obtained, 2 c.cm. of distilled water are gradually added, the emulsion being made with a glass rod. This is transferred to a test tube, and shaken up with 18 c.cm. of physiological salt solution. Used alone or in presence of normal serum this emulsion does not absorb any complement, whereas it has a considerable absorptive power with syphilitic serum, so that when the reaction is very active an extremely feeble dilution of the antigen will still deviate complement, and it is remarkable that it will deviate considerably more than an extract prepared in the usual way. Bordet and Ruelens proceed with the reaction as follows: To tubes containing 1 c.cm. of saline solution 3 drops of the emulsion of antigen are added, and then 1 drop of fresh guinea-pig serum previously diluted in its own volume of saline, and finally either 0.05 c.cm. or 0.1 c.cm. of the suspected serum which has been heated to 56° for twenty minutes. The pipettes used for the drops are made from quill tubing, and so prepared that each gives 25 drops for each cubic centimetre of physiological saline solution. Naturally, all the usual controls are put up. After leaving the tubes for an hour in the incubator, 1 drop of sensitized corpuscles is added. The authors employ washed goat's corpuscles, diluted with twice the volume of saline solution, to which is added the necessary quantity of immune serum to give haemolysis in the control tubes in twenty to thirty minutes. The degrees of activity of a syphilitic serum may be measured by a series of dilutions of the antigen. It has been noted, also, that the lipoid in the antigen comes down as a flocculent precipitate under the influence of inactivated syphilitic serum, and the flocculation occurs more promptly at a temperature of 50° to 55°. This precipitate has an intense absorptive power for complement.

[1] *Comptes rendus de la Soc. de Biologie*, July 19th, 1919.

TRENCH FEVER.

No apology is needed for referring repeatedly to the necessity for a wider knowledge of trench fever, a disease which probably caused greater invalidity and more wastage than any other infection in the British armies during the war. Not only was it a drain on man-power when every able-bodied man was needed, but in a certain proportion of cases the effects have been very prolonged and thousands of men are suffering, and will suffer for a length of time that cannot at present be determined, from its debilitating after-effects. Though the war was a medical triumph, in that great epidemics which kill men by the thousand were averted, it would be erroneous to think that sickness did not bulk largely in the total casualty returns; when the full history of the war is published, it will in all probability be found that more men were evacuated from the armies for disease than for battle casualties. The figures given below are not derived from official sources, but we believe that in France alone some 1,800,000 sick cases were evacuated from the front to the bases. A very large percentage were suffering from trench fever. An unofficial analysis made of 100,000 sick admissions to casualty clearing stations in 1917 is helpful as an indication. About 25 per cent. were suffering from trench fever or its sequelae; and very many had to be evacuated, certainly a larger percentage than would apply in most of the other large groups of diseases which were analysed. Some idea of the magnitude of the numerical problem and the strain it put on the Army Medical Service is thereby obtained. Carrying the argument a stage further, we have the authority of Major Byam, whose book is reviewed in another column, that about 15 per cent. of the cases which reached the bases were transferred to England. This figure also probably errs on the side of being an underestimate. Of these he further states that over a third had lasting disability. Cases have come under

observation in which the first attack had occurred over four years earlier, and the victims were still liable to recurrences, which with the passage of time were milder, but nevertheless still hindered full activity and lowered mental and physical fitness. In trench fever the rare experience has been given to us to see a disease which, if not new, was at all events never before clearly identified; to watch its progress, its manifestations in various forms (which differed so much as to raise the question whether several separate infections were not present); to note its evolution from the mild infection without relapse of the early months of 1915 to a severe recurrent type with persisting disability; to have the epidemiological facts proved to the hilt by two commissions working independently and arriving at substantially the same results; and, finally, to have the means of prophylaxis clearly determined. Trench fever is a disease of the war and should remain a war disease. Should it spread in civil life, now that the means of prevention are understood, it will be a lasting blot on the escutcheon of our health authorities.

DANGERS OF ELECTRICITY IN THE HOME.

RECENTLY a well-known Lancashire business man, aged 44, was electrocuted whilst having a bath in his own home. He suffered from rheumatism, and was in the act of applying an electric vibrator to the upper part of his body when the accident happened. This vibrator was attached to an ordinary lighting socket. A cry for assistance was heard, and when the door was burst open he was found sitting in the bath grasping the vibrator and unconscious; artificial respiration was tried without success. At the inquest it appeared that one of the wires of the vibrator had corroded, with a result that the whole machine became "alive." This is not the first time that such an accident has happened in a bathroom, but usually death has been due to a flaw in the electrical fittings; the victim has attempted to switch an electric light off or on whilst he is immersed in the water, the switch is defective, and he is killed instantaneously. Dr. A. G. B. Duncan reports this week, at page 344, a fatality due to defect in a portable electric lamp connected with the lighting circuit. The lay public are so used to seeing electricity used in their homes for many domestic purposes that there is a tendency to overlook its dangers. Further, the uses of electricity, and of all kinds of electrical apparatus, in the treatment of soldiers disabled by wounds and sickness, have become so familiar to large numbers of people of all classes, and so many unqualified assistants, male and female, have conducted the routine applications, that probably a general feeling has sprung up that all this apparatus is quite safe, and that anyone can handle these machines, and administer treatment with them, without the least danger to themselves or to others. No doubt there is often little or no risk, but familiarity tends to breed contempt, and then an accident such as that narrated is the result. Certain it is that no treatment should ever be carried out by means of any apparatus which utilizes the main electrical house current, unless under the direct control of an expert. No one with the most elementary knowledge of the danger of an electric current would immerse himself in the ordinary household bath and then proceed to administer treatment from any piece of apparatus connected with the ordinary lighting circuit, nor, indeed, would he allow anyone else to administer such treatment. It is practically useless to attempt to insulate an ordinary bath fitted with metal water pipes and a waste pipe, and a person immersed in a bath becomes an excellent conductor for electricity. In a properly fitted bathroom the switches, lights, and wires should be so arranged that it is impossible for anyone whilst in the bath to touch any of them with any part of his body. Further, all these fittings should be at a distance from the pipes, and care should be taken that no defect is possible and that the insulation is perfect. When an accident occurs the first thing to be done is to switch off the current, and the victim should never be handled with the bare hands before this is done. Rubber gloves are, of course, safe, but these are seldom likely to be at hand; a practical thing to do is to wrap up the hands in several folds of dry cloth before attempting to touch the person. Death results from inhibition of the heart's action, but an attempt should be made to save life by means of artificial respiration.

DISTRESS AND DISEASE IN VIENNA.

THE general question of relief in German-Austria is at present being studied by the Supreme Economic Council, whose head quarters are in Paris. The British department of that Council has recently forwarded to the British Medical Association an appeal to the public and to the medical profession of the United Kingdom on behalf of Vienna hospitals and of Vienna as a centre of medical study and research. The appeal has been drawn up by representative Viennese medical men, and is supported by the chiefs of the British and American Missions and by Dr. Hector Munro, who is now engaged on relief work in that city. After touching on the value and importance of the hospital training and the research work into the cause and cure of disease conducted in Vienna during the past century and a half, the history of the Vienna medical school is briefly outlined. "The prestige of the Vienna medical school was never higher and the number of its students never greater than was the case in 1914, on the eve of the war. The contrast between its situation then and the situation of the school to-day is both striking and tragic. Now that the war is over, vast problems confront the Vienna medical school. War was terrible, with its wounded and its invalids, its series of epidemics and infectious diseases—typhoid, dysentery, spotted fever, and cholera. All of these diseases reduced the population and enfeebled those who remained. Tuberculosis has developed into a deadly and acute disease, particularly in Vienna. Nephritis is present and has taken vast toll. As the result of continuous underfeeding and hunger, dropsy, rickets, scurvy, and Barlow's disease—a disease due to malnutrition—the wards of the Vienna hospitals are filled to overflowing. In one clinic alone there were 18 cases of spontaneous fracture in adults due to continuous starvation." To this appeal is appended a report on the health of the city of Vienna, drawn up by Dr. Boehm, the principal medical officer. In addition to the urgent need for special food in large quantities, it would appear that there is an absolute shortage of such hospital supplies as soap, surgical dressings, and essential drugs. The total number of deaths from tuberculosis is given as 6,233 in 1914 and 11,741 in 1918; and Dr. Hilda Clark, who is engaged with Dr. Hector Munro in investigating the state of the hospitals of German-Austria and Hungary, is informed by the Vienna Health Department that the death rate from this disease for the past three months has been higher than it was for the corresponding months last year. With regard to the question of what is being done, we are informed that the American Children's Relief Organization gives 100,000 children one meal a day in Vienna. The Internationale Spitalshilfe Aktion has been formed from leading Vienna practitioners and representatives of Great Britain and America to distribute help given for the hospitals. Through this committee arrangements are being made for a better method of supplying eggs and milk to the patients. The American Red Cross also is supplying a considerable quantity of Red Cross stores to relieve the distress in Vienna, but we understand that much more remains to be done to cope with the grave increase in tuberculosis and rickets. The needs of the moment appear to be food, fuel, clothing, and hospital supplies.

TEMPORARY COMMISSIONS IN THE R.A.M.C.

THE War Office makes the following announcement. The terms and conditions are in several important respects a considerable improvement upon those previously offered: "The War Office is prepared to accept the services of medical practitioners, including those who have been demobilized, who are desirous of undertaking duty with the army. Candidates who have served before will be commissioned in their previous rank. Lieutenants who have completed one year's satisfactory service as such will be commissioned as captains. Those who have not served previously will be commissioned as lieutenants. The period of engagement will be for six months, and the contract will not be terminable by either party prior to the expiration of that period except for misconduct, inefficiency, or medical unfitness. Pay to be at the rate of: Lieutenants £600 per annum, captains £650 per annum, and in addition the following will be issuable: (1) Pay at the rate of £50 per annum when serving elsewhere than in Europe. (2) Rations or an allowance in lieu thereof (present rate 2s. 1d. per diem). (3) Specialist, or charge pay, when holding a position for which the issue of such is authorized. (4) Officers holding higher acting or substantive rank than that of captain will, if desirous, be granted the pay and allowances of their rank. Kit and outfit allowance will be issued to candidates who have not previously received such allowance. All candidates must be fit for general service or garrison duty abroad and will require to undergo a medical examination prior to being accepted. Applications should be addressed to the Secretary, War Office, Cornwall House, Stamford Street, S.E.1."

INFLUENZA AND NEURO-SYPHILIS.

AMONG the numerous papers dealing with influenza and its complications attention may be called to Menninger's[1] discussion of the effect of influenza on syphilis of the nervous system, as illustrated by the experience gained during the recent epidemic of influenza at the Boston Psychopathic Hospital. These cases fell into four groups (i) in which symptoms of neuro-syphilis were entirely absent before the attack of influenza; in pre-Wassermann days some of these cases would on circumstantial grounds have been accepted as proof of a non-syphilitic etiology for general paralysis; (ii) in which the previous symptoms were trivial and not diagnostic, but in which typical and advanced neuro-syphilis appeared immediately after influenza; (iii) in which the previous symptoms were diagnostic of neuro-syphilis but were intensely aggravated by influenza; and (iv) cases of neuro-syphilis in which the clinical manifestations and course were not perceptibly affected by influenza; these were advanced cases. No evidence was forthcoming to show that influenza ever exerted any beneficial effect. The literature on the effect of influenza on syphilis of the central nervous system is scanty; it has been thought that influenza acts merely as an incidental precipitating factor, and that any other infection, particularly oral sepsis, may behave in just the same way. It certainly appears from the data about influenza and syphilis that simultaneous infections may by their combined attack produce a clinical picture resembling that of one of them only.

MAMMALIAN AND CLINICAL PHYSIOLOGY.

THAT the medical student is encouraged to learn his work at all stages by practical experiments and observation, and, still more important, by his own observation and experiments, has always been the pride and boast of British medical schools. This system is the one that suits our students best, and for a practical race is infinitely better than the best schemes of professorial or tutorial demonstrations as practised in other countries. We have recently received from Professor Sherrington of Oxford a copy of his class book on *Mammalian Physiology*,[2] in which the principle of letting the medical student perform his experiments for himself, of course under skilled supervision, is carried a step further than, we believe, it has hitherto been carried elsewhere in Europe. The book consists of twenty-one exercises in which are described nearly a hundred separate practical experiments, the material being the decapitate or decerebrate surviving mammalian carcass of animals such as the cat or rabbit. Very clear descriptions of the experimental methods and manipulations to be employed are given, freely elucidated with figures and plates where necessary, and annotations at the end of each exercise bring into prominence any special historical or clinical importance that may attach to the particular experiments performed. It is impossible to mention more than a few of the many important and illuminating experiments the student is here instructed how to perform; they include work on the mechanism of the heart, lungs, alimentary tract, kidneys, nervous system, blood, and pancreas, and illustrate subjects of great clinical importance, such as haemolysis, air embolism, reflex inhibition, and many others. An appendix gives directions for the general arrangements of the course, and the apparatus and material required by a class of eighteen students working in nine pairs; the course itself is designed to extend over the academic year at Oxford, one exercise being worked through in the course of three hours once a week, and three sessions being left unoccupied in order that any particular exercise may be repeated as required. Professor Sherrington's course breaks new ground, and is designed in a thoroughly practical manner; it should prove most attractive as well as useful to the intelligent medical student, and has, indeed, been singled out for special commendation by Sir George Newman[3] as "the kind of applied physiology which should in my view be taught in all schools of physiology." In addition to this course of practical exercises in mammalian physiology Professor Sherrington has instituted at Oxford another course entitled "Clinical Physiology," also given weekly throughout the year, providing instruction in modern physiology as applied to the human body; it is to be regarded as a liaison course between the mammalian course described above and the hospital, and comprises instruction given partly in the university laboratory and partly in the local infirmary, and should enjoy a wide popularity.

A MINISTRY OF HEALTH IN THE UNITED STATES.

Two bills for the establishment of a national department of health are now before the United States Congress. One provides for a Secretary of State, who is to be a member of the Cabinet, and a commissioner of health, both to be appointed by the President. The department is to include bureaux of sanitary research, child hygiene, vital statistics, food and drugs, quarantine, sanitary engineering, government hospitals, personnel and accounts; an advisory board of seven expert consultants; and an official conference of State and territorial health. The existing Public Health Service, Bureau of Chemistry, and Division of Vital Statistics would be transferred from their respective departments. The other bill is similar in provisions, except that it appropriates £2,000,000 annually, £200,000 to be applied in co-operation with the States in establishing a uniform system of health administration, £400,000 in co-operation with the States for sanitation, £1,000,000 in co-operation with them in the control of communicable disease, and £400,000 for scientific research.

[1] K. A. Menninger: *Arch. Int. Med.*, Chicago, 1919, xxiv, 93-115.

[2] *Mammalian Physiology: A Course of Practical Exercises.* By C. S. Sherrington, M.D., D.Sc., F.R.S. Oxford: At the Clarendon Press. 1919. (Demy 4to, pp. xi + 156; 48 figures, 9 plates.)

[3] *Notes on Medical Education in England.* 1918.

AMERICAN AID TO CHECK TUBERCULOSIS IN ITALY AND FRANCE.

A COMMISSION was set up during the war by the American Red Cross in Italy to study the conditions under which tuberculosis was developed and fostered in that country. The success which has attended that investigation forms a striking testimony to the wisdom of the Italian health and educational authorities in accepting foreign criticism of their own shortcomings no less than to the tact and courtesy with which such criticism has been conveyed. From a report of the results of the preliminary inquiry, it appears that special attention was first paid to three most important factors—school hygiene, child labour, and housing in Italy. Special facilities were afforded by the Italian School Hygiene Association for visiting and making a close inspection of the existing conditions in each case; and full access was given to all rules and regulations at present in force. That a great need exists in Italy, and indeed in most of the countries of Eastern Europe, for the introduction of rational methods of teaching the elementary rules of hygiene and of putting them in force, is only too obvious. Having ascertained the defects of the present lack of system, the reporters are able to present a series of schemes for improvement which have been approved by the Italian authorities. To what extent these recommendations can be carried out in actual practice must depend upon the local powers for overcoming the resistance of vested interests and private antagonism. The adoption of American methods, aided by material grants, has already fired the enthusiasm of Italian health workers; and it is hoped that from these beginnings may arise a system of international co-operation which will have far-reaching results. It is satisfactory to note that prevention rather than cure of tuberculosis has been the aim of the work thus far, and that legislation to this end has already been formulated. The protection of the infant, the maintenance of hygienic conditions during school life, and the prevention of unsuitable work for the young adult have formed the chief points of attack up to the present year, and the means whereby the advance has been brought about are well set forth in the Report of the Commission. In France also a Commission was established to investigate the conditions favouring the spread of the disease in certain towns and areas, and by the help of liberal grants of money a chain of centres was set up providing facilities for special treatment. A novel method of inculcating hygienic principles in schools was to furnish every child with a list of daily tasks to be observed on which they were required to mark with a cross their compliance under each heading, the marks being checked daily or weekly by the parents or teachers. Credit was given for the best record for observance of ordinary hygienic rules with respect to cleanliness, open windows, exercise, and so on; these records formed a constant reminder, not only to the children but also to the parents, and have played a useful part in the general propaganda. Two interesting papers in the June number of the *Revue d'Hygiène* give expression to the keen appreciation by French authorities of the assistance given by their American colleagues. Among several new features it may be noted that a system of appointment of local practitioners to carry out treatment has been established in some parts of France, the diagnosis being made in the first instance by the physician attached to the dispensary.

THE SANATORIUM AS A TRAINING SCHOOL.

MUCH stress has been laid upon the value of sanatorium life as a guide to the consumptive in the ordering of his own future. Its value as a training school for specialist doctors and nurses has not been so fully appreciated. In the annual reports of the Trudeau Sanatorium in America[1] this aspect of the work is brought prominently forward. By the institution of endowed Fellowships, young physicians have the opportunity of studying tuberculosis in all its aspects, and many of those who have availed themselves of it have had personal experience of the disease as patients. A training school for nurses has also been established and has been instrumental in keeping up the supply of skilled women for national service. The success which has attended the treatment provided at the Trudeau Sanatorium, which is situated in one of the most ideal spots in the Adirondack Mountains, sufficiently explains its popularity both with patients and students. Equipped with every possible appliance for the study of disease and for the arrest of its progress, it is also well supplied with means of entertainment, educational and otherwise. Occupation, both bodily and mental, is essential to success in treatment, but this fact is not always kept in view in some of our home sanatoriums, where a minimum staff only is maintained. The introduction of special students and of selected probationer nurses would serve a double purpose. While studying the disease and its treatment they could contribute in no small degree to the mental interest and well-being of the patients.

[1] Thirty-fourth Annual Report of the Trudeau Sanatorium, Saranac Lake. New York, November, 1918.

THE EPITOME.

WE propose to resume the Epitome of Current Medical Literature, which was suspended during the later part of the war, and the first issue will be published with the JOURNAL of September 27th. The Epitome is intended to supply the needs of those in general practice who have not access to many other medical journals. It is not proposed to make abstracts from all articles appearing but merely to select those which would seem to be of interest to those who are not specialists. Even at the present time the exchanges of journals are far from being restored to the pre-war conditions, and the arrangements for abstracting suitable articles are not yet complete; but it has been thought advisable to make a beginning with what we have at our disposal, in the expectation of improving the Epitome gradually as conditions become more normal.

THE Council of the British Medical Association, at a special meeting held on September 10th, appointed Dr. G. C. Anderson, who has been honorary secretary of the Fife Branch and a member of the Scottish Committee since 1911, to the post of Deputy Medical Secretary of the Association. The Council also appointed Dr. J. R. Drever of Glasgow to the new post of Scottish Medical Secretary.

THE "Dogs' Protection" Bill was rejected by the House of Commons on June 27th. Notwithstanding this defeat, it would seem that the opponents of the progress of medicine by research are already at work again. Mr. Stephen Paget, in a letter which we print this week, says that anti-vivisection shops are appearing once more, but that the Research Defence Society has many suitable leaflets and is ready to arrange for their distribution.

WE regret to announce the death of Mr. Thomas Pickering Pick, consulting surgeon to St. George's Hospital, and H.M. Inspector of Anatomy in England and Wales. We hope to publish an obituary notice in an early issue.

THE King of the Belgians has granted the "Médaille du Roi Albert" to the following medical men for services rendered to Belgian refugees: Sir Rickman J. Godlee, Sir Frederick Taylor, Dr. C. St. Aubyn-Farrer, Dr. S. Squire Sprigge, Dr. Chittendon Bridges, Dr. Neville Hart, Dr. J. H. Philpot, Dr. W. E. Robinson, Dr. Arthur C. Roper, Dr. H. R. M. Randell, and Dr. L. Vintras.

HONOURS.

MENTIONED FOR WAR SERVICES.

THE names of the following medical officers have been brought to the notice of the Secretary of State for War for valuable services rendered in connexion with the war:

Department of the Under Secretary of State for War.

Colonel L. K. Harrison, 5th Northern General Hospital R.A.M.C.(T.F.).
Colonel U. Matthews, London Vol. R.A.M.C.
Lieut.-Colonel J. G. Yolland, Kent Vol. R.A.M.C.
Major J. Lytle, Shropshire Vol. R.A.M.C.

Department of the Chief of the Imperial General Staff.

Captain J. P. Kinloch, R.A.M.C.(T.F.).

Department of the Adjutant-General to the Forces.

Lieut.-Colonel H. A. Williams, D.S.O., M.M., I.M.S.
Majors: G. N. Anderson, E. L. D. Dewdney, and J. H. Dixon, R.A.M.C.(T.F.)., J. Fairbairn, R.A.M.C.
Temporary Majors: A. S. G. Bell, L. E. Lanyon-Owen, R. T. Meadows, P. J. A. Seccombe, T. Walcot, and A. W. Wilcox, R.A.M.C.
Captains: E. B. Allnutt, M.C., H. F. Bellamy, and L. C. Hayes, R.A.M.C., C. A. Laubach, M.C., U.S.A., A. B. Pettigrew, R.A.M.C.(T.F.).
Temporary Captains (acting Majors): W. A. Clayton, H. McIntyre, and H. H. O'Heffernan, R.A.M.C.
Temporary Captains: W. G. E. Allen, I. M. Byers, H. B. Emerson, P. R. Eskell, J. H. Glover, S. W. Green, W. R. G. Hamilton, J. G. Heath, T. Heywood, W. P. Jones, F. Jubb, H. A. Lane, J. C. Lavertine, J. M. Lazenby, G. W. P. Maitland, J. A. Quin, R. E. Smith, H. G. Steel, and L. H. Walsh, R.A.M.C.

Department of the Quartermaster-General to the Forces.

Captain S. C. Wyatt, R.A.M.C.
Temporary Lieutenant (acting Captain) J. L. Wright, R.A.M.C.

Aldershot Command.

Lieut.-Colonel W. Turner, C.M.G., R.A.M.C.
Temporary Majors: T. W. Eden, R.A.M.C.; T. Rankin, Special List, attached R.A.M.C.
Captain (acting Lieut.-Colonel) A. G. Wells, D.S.O., R.A.M.C.
Temporary Captain A. D. Ball, Special List, attached R.A.M.C.

Eastern Command.

Colonels: C. R. Elliott, R.A.M.C.(R.P.), G. T. Goggin, A.M.S. (R.P.), A. D. Sharp, C.B., C.M.G., A.M.S.(T.F.).
Lieut.-Colonels: T. Archer, R.A.M.C., G. E. Wherry, R.A.M.C.(T.F.).
Temporary Lieut.-Colonel L. W. Rolleston, R.A.M.C.
Majors: G. F. Alexander, R.A.M.C., W. Patterson, V.D., R.A.M.C.(T.F.) (Lieut.-Colonel T.F. Reserve).
Temporary Majors: W. A. Chapple, H. Irving, W. F. Jones, A. Neve, A. O'Neill, and E. Swainston, R.A.M.C.
Captains (acting Majors): A. J. Gibson, L. J. E. McHugh, E. W. Matthews, W. Redpath, and A. E. Ridsdale, R.A.M.C. (T.F.).
Temporary Captains (acting Majors): J. V. Bates, M.C., A. E. Marsack, G. A. Skinner, and A. W. Tabuteau, R.A.M.C.
Captains: C. N. Atlee, H. J. Blackler, C. Clifford, and A. K. MacLachan, R.A.M.C.(T.F.); T. M. Savage, R.A.M.C.
Temporary Captains: H. E. Batten, R. L. Bell, and J. B. Dalton, R.A.M.C., L. Dinnis, Special List, attached R.A.M.C., J. W. Edington, G. D. Gripper, H. A. Hancock, H. Johnston, W. Kirk, W. E. Passmore, F. J. Rawlinson, J. Renwick, and M. E. A. Wallis, R.A.M.C.

Northern Command.

Colonels: A. Connell and A. E. L. Wear, C.M.G., R.A.M.C. (T.F.); Lieut.-Colonel (acting Colonel) E. V. Gostling, D.S.O., R.A.M.C.(T.F.).
Lieut.-Colonel and Brevet Colonel H. L. Battersby, R.A.M.C. (R.P.).
Lieut.-Colonels: A. G. Barrs, T. Beattie, and W. M. Gabriel, V.D., R.A.M.C.(T.F.), F. Harvey, R.A.M.C., W. B. Mackay, C.M.G., T.D., R.A.M.C.(T.F.), A. Martin, R.A.M.C., W. Murray, R.F.A.(T.F.), attached R.A.M.C., S. Nesfield, T.D., R.A.M.C. (T.F.), J. A. Wait, T.D., R.G.A.(T.F.), attached R.A.M.C., G. H. Younge, R.A.M.C.(R.P.).
Temporary Lieut.-Colonels: J. J. G. Blandford, E. G. Coward, H. H. Curgrave, A. Russell, and W. Scattery, R.A.M.C.
Major and Brevet Lieut.-Colonel J. W. Watson, R.A.M.C. (T.F.).
Majors (acting Lieut.-Colonels): H. E. J. A. Howley, R.A.M.C., J. K. Jamieson, W. H. M. Telling, and W. Thompson, R.A.M.C. (T.F.).
Majors: G. Ashton, R.A.M.C.(T.F.), R. H. Clement, R.A.M.C. (R.P.), J. A. Coupland, H. L. de Legh, E. F. Finch, F. S. Genney, A. R. Hallam, W. W. Jones, W. M. Mackay, J. B. McBride, S. Newfield, S. W. Plummer, H. A. Rudyard, T.D., G. A. C. Shipman, J. D. Slight, E. C. Stack, W. E. F. Tinley, C. B. Turner, and A. G. Yates, R.A.M.C.(T.F.).
Temporary Majors: H. S. Brander, M.C., C. D'O. Grange, and T. E. Holmes, R.A.M.C., F. R. Lucas, R.A.M.C. (Major 9th Battalion Royal Scots, T.F.), J. M. Macmillan, H. D. Macphail, J. M. Mathieson, J. Phillips, A. Robertson, J. G. Rowell, T. C. Squance, R. H. Trotter, W. H. Whitehouse, and J. C. Wright, R.A.M.C.
Captain (temporary Major) G. S. Simpson, R.A.M.C.(T.F.).
Captains (acting Majors); L. R. Braithwaite, R.A.M.C.(T.F.), J. Gossip, R.A.M.C.(S.R.), A. Griffith, W. A. Robertson, and C. W. Vining, R.A.M.C.(T.F.).
Temporary Captains (acting Majors): B. Cox, J. McF. Donnan, H. G. Drake-Brockman, J. Maxwell, and J. P. Musson, R.A.M.C.
Captains: G. P. Anning, J. le F. C. Burrow, W. J. Gray, G. C. Hayes, G. S. Levis, A. H. Lowe, J. W. Malim, H. Mason, J. P. Matthews, A. Miller, A. Richardson, S. Thompson, and C. Tweedy, R.A.M.C.(T.F.).
Temporary Captains: J. Cameron, Special List, attached R.A.M.C., J. J. Healy, H. Keighley, H. A. Mahony, E. Montgomery, R. Park, and P. L. Pollard, R.A.M.C., B. B. Samuel, General List, attached R.A.M.C., W. C. Sharpe, R. S. Snowie, R. E. Walker, J. B. Whitfield, and T. L. Wormald, R.A.M.C.

Scottish Command.

Major-General J. B. Wilson, C.B., C.M.G., A.M.S.
Colonel E. Butt, A.M.S.(R.P.).
Lieut.-Colonels: J. B. Jamieson, T.D., A. Mackintosh, J. Mill, V.D., and A. D. Moffat, T.D., R.A.M.C.(T.F.).
Temporary hon. Lieut.-Colonel H. Chaffer, R.A.M.C.
Temporary Lieut.-Colonel H. C. Marr, R.A.M.C.
Major and Brevet Lieut.-Colonel E. S. Forde, R.A.M.C.(T.F.) (Major 5th Battalion K.O.S.B.(T.F.)).
Majors: J. W. B. Hodsdon, A. MacGillivray, and W. J. Mackinnon, T.D., R.A.M.C.(T.F.).
Temporary hon. Major A. MacD. Westwater, R.A.M.C.
Captain (acting Lieut.-Colonel) W. Brown, R.A.M.C.
Captain (temporary Major) G. N. Anderson, R.A.M.C.(T.F.).
Captain (acting Major) A. A. McWhan, R.A.M.C.(T.F.).
Temporary Captain (acting Major) D. J. Glen, R.A.M.C.
Captains: W. C. Davidson, R.A.M.C.(S.R.), J. C. McKenzie, R.A.M.C.(T.F.).
Temporary Captain A. Campbell, R.A.M.C.

Southern Command.

Colonel and honorary Major-General W. F. Stevenson, C.B., K.H.S., R.A.M.C.
Colonels: A. W. Bewley, C.M.G., R.A.M.C., C. H. Melville, C.M.G., A.M.S.
Lieut.-Colonels: W. T. Brooks, R.A.M.C.(T.F.), W. G. Clements, R.A.M.C., W. Collier and G. W. Craig, R.A.M.C. (T.F.), G. H. Goddard, D.S.O., and E. P. Hewitt, R.A.M.C., C. W. S. Magrath and A. E. Master, R.A.M.C., W. A. Mawson, R.A.M.C.(I.M.S.), E. G. Peck, D.S.O., T.D., R.A.M.C.(T.F.).
Temporary Lieut.-Colonel A. C. Suffern, R.A.M.C.
Major and Brevet Lieut.-Colonel (acting Lieut.-Colonel) J. E. H. Sawyer, R.A.M.C.(T.F.).
Majors: G. S. Abram, E. C. Bevers, E. J. Davies-Taylor, and A. G. Gibson, R.A.M.C.(T.F.), A. E. Milner, R. of O., R.A.M.C., W. J. Orr, J. Orton, and W. P. Purvis, R.A.M.C.(T.F.), C. E. G. Stalkartt, R. of O., R.A.M.C., E. G. Stocker, and P. McK. Terry, R.A.M.C.(T.F.), E. C. Whitehead, R.A.M.C.
Temporary Majors: G. E. MacLeod, E. M. J. O'Farrell, and E. W. Witham, R.A.M.C.
Captain and Brevet Major J. L. Joyce, R.A.M.C.(T.F.).
Temporary Captain (acting Lieut.-Colonel) C. J. West, R.A.M.C.
Captains (acting Majors): C. W. J. Brasher, A. Campbell, and G. P. D. Hawker, R.A.M.C.(T.F.).
Temporary Captains (acting Majors): N. Dunn, W. Martin, H. E. Rawlence, J. A. W. Watts, and W. A. Wheeldon, R.A.M.C.
Captains: F. Clarke, R.A.M.C.(T.F.), J. M. Courtney, R.A.M.C.(S.R.), W. J. Foster, A. Gregor, G. H. R. Holden, S. Jones, G. D. Kettlewell, H. R. Parsloe, T. S. Pettitt, E. W. S. Rowland, W. A. Stokes, and J. W. Stretton, R.A.M.C.(T.F.).
Temporary Captains: M. Ashley, H. H. Butcher, E. K. Campbell, H. G. Carlisle, T. H. R. Crowle, C. E. Fenn, E. L. Z. Fickling, J. C. Fox, K. Fraser, J. C. Glen, A. F. Hewat, E. Huntley, W. M. M. Jackson, H. Joslen, B. L. Livingstone-Learmouth, G. E. Lockyer, J. N. Martin, M.B.E., H. W. Pigeon, G. Y. Richardson, C. H. L. Rixon, E. A. Shirvell, A. G. Welsford, and S. Wyborn, R.A.M.C.
Lieutenant (temporary Captain, acting Major) R. G. Oram, 9th Battalion London Regiment, attached R.A.M.C.
Lieutenant F. J. Babb, Dorset R.A.M.C.(Volunteers).

Western Command.

Colonels: C. Averill, V.D., and W. Coates, C.B., V.D., R.A.M.C.(T.F.).
Lieut.-Colonel and honorary Surgeon-Colonel D. Hepburn, C.M.G., V.D., R.A.M.C.(T.F.).
Lieut.-Colonels: J. H. P. Graham, R.A.M.C.(S.R.) (honorary Lieutenant Indian Army), and G. A. Wright, R.A.M.C.(T.F.).
Temporary Lieut.-Colonels: E. Goodall, A. Lingard, and A. Simpson, R.A.M.C.
Majors: H. T. Jenkins, 6th Battalion Royal Welsh Fusiliers (T.F.), attached R.A.M.C., R. W. Murray, and F. T. Paul, R.A.M.C.(T.F.).
Temporary Major F. M. Rodgers, R.A.M.C.
Captain (acting Major) J. Tait, R.A.M.C.(T.F.).
Temporary Captain (acting Major) A. J. H. Boyton, R.A.M.C.
Captains: A. E. Hodgson and C. P. Lapage, R.A.M.C.(T.F.).

33rd Army Corps.

Majors: H. A. Howes, T.D., R.A.M.C.(T.F.) (Major 4th Battalion Lincolnshire Regiment T.F.), S. R. Matthews and D. J. Penney, T.D., R.A.M.C.(T.F.).

Captains (acting Majors): R. Armstrong and G. Raymond, R.A.M.C.(T.F.).
Temporary Captains: E. S. Cuthbert, R.A.M.C., attached 51st (Grad.) Battalion Royal Fusiliers, A. Grant and S. B. Hanbury, R.A.M.C.

Irish Command.
Lieut.-Colonels: J. B. Buchanan, M.C., R. of O., R.A.M.C., G. J. Coates, R.A.M.C., H. C. Donald, T.D., and H. Jones, R.A.M.C.(T.F.), J. P. J. Murphy, A. de C. Scanlan, C.M.G., and B. W. Somerville-Large, R.A.M.C.
Surgeon-Major G. W. Trouton, West Kent Yeomanry (T.F.).
Major E. T. Vint, R.A.M.C.(T.F.).
Temporary Majors: R. D'A. Irvine, R.A.M.C., A. K. Macdonald, Special List, attached R.A.M.C.
Temporary Captain (acting Lieut.-Colonel) J. D. O'D. Egan, R.A.M.C.
Temporary Captains (acting Majors): W. Law and D. Murphy, R.A.M.C.
Captain O. H. Blacklay, R.A.M.C.(T.F.).
Temporary Captains: I. A. Davidson and B. Ferrar, R.A.M.C., A. F. A. Howe, Special List, attached R.A.M.C., R. B. Hunt, T. Kirkwood, H. S. Laird, N. C. Patrick, C. B. Pearson, R. H. Scovell, and H. R. Wright, R.A.M.C.

Channel Islands.
Surgeon-Captain and honorary Surgeon-Major H. D. Bishop, R. Guernsey Artillery and Engineers Militia.

Miscellaneous.
Captain and Brevet Major C. W. Wirgman, R.A.M.C.(T.F.).

Ministry of Munitions.
Captain J. M. McQueen, R.A.M.C.(T.F.).
Temporary honorary Captain C. G. L. Wolf, R.A.M.C.

Dominion of Canada.
Captains (acting Majors): T. McC. Creighton and W. Ross, C.A.M.C.
Captains: E. A. Campbell and H. Coppinger, C.A.M.C.

Commonwealth of Australia.
Lieut.-Colonel (temporary Colonel) J. M. Y. Stewart, D.S.O., A.A.M.C.
Lieut.-Colonels L. O. Betts, O.B.E., G. A. W. J. Knight, H. S. Newland, D.S.O., G. Raffan, C. G. Shaw, D.S.O., J. W. Springthorpe, and H. C. Taylor-Young, A.A.M.C.
Majors (temporary Lieut.-Colonels): E. J. Brown, C. J. Wiley, and H. J. Williams, D.S.O., A.A.M.C.
Majors: T. L. Anderson, J. B. Bell, J. P. Fogarty, M.C., A. C. Fraser, H. A. C. Irving, H. O. Lethbridge, M.B.E., P. A. Maplestone, D.S.O., J. C. Mayo, H. H. McWilliams, and E. H. M. Stephen, A.A.M.C.
Captain (temporary Major) K. Russell, A.A.M.C.
Captains: W. R. Bailey, S. M. Cordeau, G. Finlay, F. R. Forster, R. L. Forsyth, A. Goode, A. Juett, E. McKenzie, and S. B. Thomas, A.A.M.C.

Dominion of New Zealand.
Colonel P. C. Fenwick, C.M.G., N.Z.M.C.
Lieut.-Colonel B. E. Myers, C.M.G., N.Z.M.C.
Majors: A. Hosking, T. McKibbin, O.B.E., and T. R. Ritchie, N.Z.M.C.
Captains: S. Allen, P. Chisholm, and A. T. McCaw, N.Z.M.C.

Union of South Africa.
Lieut.-Colonel C. H. van Zyl, S.A.M.C. (died).
Temporary Lieut.-Colonel J. H. Whitehead, D.S.O., S.A.M.C.
Captain D. MacK. MacRae, S.A.M.C.

Dominion of Newfoundland.
Major C. Macpherson, C.M.G., Newfoundland R.

Ceylon.
Captain (acting Major) P. W. Mathew, R.A.M.C.(S.R.).

Egypt.
Lieut.-Colonel (acting Colonel) C. Garner, C.B.E., R.A.M.C.(R.P.).

Gibraltar.
Temporary Captain W. O. Roberts, R.A.M.C.

Hong Kong.
Lieut.-Colonel G. B. Crisp, R.A.M.C.

Jamaica.
Major R. S. Turton, R.A.M.C.

Malta.
Surgeon-Majors: A. E. Mifsud and R. Randon, Royal Malta Artillery.
Temporary Majors: T. Mackenzie, V.D., and C. R. Nicholson, R.A.M.C.

D.C.M.
The Distinguished Conduct Medal has been awarded to 4th Class Assistant Surgeon D. M. Mackay, Indian Medical Department.
For the display of great courage and presence of mind at Medo, East Africa, on April 12th, 1918, when he repeatedly went out to collect wounded under heavy rifle and machine-gun fire. His services on this occasion were admirable.

Scotland.

ANNUAL MEETING OF THE INCORPORATED SANITARY ASSOCIATION OF SCOTLAND.

THE forty-fifth annual congress of the Incorporated Sanitary Association was held at Perth from September 3rd to 6th. This association is one which, without being distinctively medical, yet plays, and has played, a not unimportant part as a sort of auxiliary to the regular professional societies, more especially in the education of the laity in the proper appreciation of the meaning of the problems of hygiene, national and personal. For instance, in the recently published volume of *Transactions* (for 1918), the subjects dealt with are "Individual responsibility in sanitation," "A Ministry of Health," "Future developments in sanitary administration," "The State and pre-natal care," "Maternity and child welfare schemes," "Employment of children," and "The State and the health of the child." Furthermore, many medical men are members of the association. During this year's congress the subjects discussed were again admirably practical and all more or less in the eye of the nation, so to say. The proceedings were opened on the evening of September 3rd by an attractive and suggestive address by Professor J. Arthur Thomson of Aberdeen on "Health hints from Nature," and on the 4th the president (Mr. W. E. Whyte) referred to the possibilities bound up with the passing of the new Scottish Board of Health Act and of its successors, the Housing and Town Planning (Scotland) Act and the Acquisition of Land Act, legislative enactments which marked a welcome break away from the ever unsuccessful attempt to apply English statutes to Scottish conditions. The standard of a house of three apartments which had been set up showed a better appreciation of the requirements of healthy living in the land. Ex-Baillie Robert Russell of Paisley opened a discussion on maternity and child welfare schemes, and stated that all infantile mortality over 50 per 1,000 births was excessive; at the same time, he thought that town improvement schemes would do more good than clinics, maternity hospitals, and other palliative measures. Drs. F. Dittmar of Edinburgh, and William Robertson of Leith, dealt with various aspects of the question of venereal diseases in Scotland, and the latter pleaded for a full exposure of the truth about these dire scourges. Dr. T. F. Dewar, of the Local Government Board, Edinburgh, discussed in a critical spirit the present methods of disinfection; and Mr. Francis Braid, Kirkcaldy, spoke on the issue of certificates in connexion with the production and sale of milk. On Friday, September 5th, the subjects introduced before the Congress were water and drainage provision for housing schemes, tuberculosis expenditure and results (by Dr. James Crocket, Dr. Brown, and Dr. Ebenezer Duncan), the salvage of town refuse, the care of young children's teeth (by Mr. Samuel Dunn, L.D.S.), and new houses, their rents, and their tenants. In the course of discussion, Dr. Clark Trotter, the M.O.H. for Paisley, referred to the establishment of a clinic in that town for the care of children's teeth; it was known as the "greetin' meeting." The annual dinner, a smoking concert, and excursions in the neighbourhood constituted the lighter side of the association's activities.

Correspondence.

THE CULT OF INDIVIDUALISM.

SIR,—In recent issues of the medical press there have appeared references to yet another endeavour of certain members of our profession to bring about greater "union" through the formation of another body, to be known as the British Federation of Medical and Allied Societies. I trust that the importance of the subject just now will be accepted as the excuse for this lengthy communication, and that you will be able to throw open your journal to correspondence on the subject.

The Formation of Separate Bodies.

In 1914 an attempt was made to form a medical federation in consequence of the distrust of the Insurance Acts as likely to be interpreted by the regulations. This was quickly followed by the birth of the National Medical Union, the Medico-Political Union, and the Association

of Panel Committees. The judgement of an onlooker would be probably that the individualistic tendency of members of our profession is still further exemplified by this evident weakness for splitting into separate bodies, all formed in order to secure what many consider to be impossible—namely, greater union in the profession.

Now each of these bodies hopes, if its good intentions were fully realized, that it will be able to co-ordinate medical opinion, and so cause the public, as represented by the Government and its local bodies, to give just consideration to the common views of the medical profession.

The Reason for the New Formation.

Before restating the objections as they existed in 1914, and still exist, to the formation of another body, it would be as well to face the main cause for the latest move. This, there is no doubt, is the profound distrust, suspicion, disappointment, or disgust which at present exists in the minds of many with regard to the British Medical Association as an efficient, reliable, virile, up-to-date organization capable of dealing with medico-political and sociological problems with vision, imagination, grit, and some of the enthusiasm of youth; and to be relied on to lead the profession and the public on questions affecting health safely through the many difficulties and dangers of the transitional and reconstruction periods of the new age now upon us.

But should not such a complaint be more clearly defined? Is it the machine, or those who control it, or both, to which objection is taken? If it is the machine, is it capable of being remodelled? If it is, why not assist to do this from inside? If not, would it not be far better to scrap it before building up another to which it must always be a hindrance? Or, if it is those who control the machine who stand condemned, are there not constitutional methods available by which they can be replaced? This was done in 1902 and succeeding years. Why not repeat it—always providing that the majority is available? Can the formation of new medical bodies outside the Association, but having the same objects, in any conceivable way bring about that union which we all so greatly desire? Will it not rather tend to develop friction, discord, and bring about defeat? It is futile to assert and reassert as some do "we have no intention whatever to injure the Association. We can exist side by side, can co-operate, can assist one another," and so on. Division is schism, and such an assertion is only heresy, and to be looked on with the greatest suspicion. Do its advocates really believe in it?

Objections to the Proposal.

Now what are the objections to this the latest proposal?

(*a*) The Association is now recognized by all departments in the State, in the United Kingdom, and also in certain Dominions as the mouthpiece of the profession.

(*b*) To all intents and purposes such a federation means a new British Medical Association, but under another name—that is, the formation of a rival body.

(*c*) The existence of two independent bodies authorized to deal with the same subject will lead to overlapping in work, confusion in policy, and undoubted consequent defeat for our profession when treating with public bodies.

(*d*) The number of medical practitioners actively interested in medical politics is limited, all their spare time being required by the British Medical Association. Every one who is induced to transfer his activities to a new and rival body would be a direct loss to the profession.

(*e*) The medical profession will not find sufficient money to make a success of two bodies with similar objects. It considers that when it pays £2 2s. a head to the Association it is paying quite enough.

(*f*) As both bodies will be consulting from time to time the same practitioners on exactly the same problems, although those practitioners may be differently grouped together, the profession will be expected to attend two meetings in order to express their ideas twice over. It is very difficult to get practitioners to attend one meeting. It would not be long before we heard "that they were sick of the whole subject," and that they were "fed up."

(*g*) Those favouring a federation state that in some way—but which they seem unable to define—it will be possible to form a body more representative of the profession, and to secure more loyalty and co-ordination of purpose in the profession than the Association has succeeded in doing. Are they not proposing to make silk purses out of sows' ears, and to produce blood out of stone?

The Association in 1915 determined to co-operate in every way possible with medical societies formed to represent sectional interests in the profession. It has already included representatives of several on its standing committees and desires to include others. Also, it co-operates with the Royal Society of Medicine, the Colleges, the British Dental Association, the Pharmaceutical Society, and the Central Committee for the State Registration of Nurses. The Council has been instructed to go further and to call conferences with allied societies in order to see in what way even closer co-operation is possible. The war delayed action; it will now no doubt deal actively with the problem.

An Appeal to Individual Members.

May one therefore appeal to the individual members of the many London and provincial medical societies (BRITISH MEDICAL JOURNAL, July 19th, 1919, p. 86; *Lancet*, July 19th, 1919, p. 121) formed primarily for scientific purposes which it is proposed now to band together under this federation for medico-political and sociological purposes, if they approve generally this communication, to at once approach their respective councils and to ask to be consulted before they are pledged finally to approve and financially to support the development of their society into a medico-political body which can result only in still further dividing the profession, which will be likely to cause a split amongst the members of the society itself, will weaken the Association, besides being redundant and against the best interests of the profession as a whole?

There never can be any effective union of the two groups in our profession until the one group realizes that whilst material interests should have due consideration, the intellectual side must not be neglected; and the other group, whilst developing that intellectual side and appreciating that the peaceful pursuit of its scientific studies depends very largely on the satisfactory determination of material interests, realizes that it is incumbent on it to give its loyal support to those whose attention is primarily concentrated on such interests. It is only when such a well-balanced co-operating union is formed that any Government can be expected to respect our profession and to accept its advice. Such a union is possible if the individual members will take an active interest in their respective sectional societies and at the same time will be loyal to a body which has existed for close on ninety years to safeguard the honour and interests of the profession; ceasing to look to any newly-formed bodies whose sole attractiveness is their expressed intention to try to do the impossible.—I am, etc.,

Hove, Sept. 6th. E. ROWLAND FOTHERGILL.

PROPHYLAXIS AGAINST VENEREAL DISEASE.

SIR,—The presentation of the Note on this subject from the Chairman of the Interdepartmental Committee to the Minister of Health sets the seal on the Government policy with regard to the general advocacy of and the issue broadcast of prophylactic packets. This being so, it is the duty of everyone in the medical profession who, whatsoever opinion they may hold with regard to this particular branch of the campaign, are all united in wishing to do their best to prevent and cure this disease, to take whatever measures may be possible to attain these ends.

First of all, with regard to prevention, it is essential that there should be education of the whole of the population, male and female, given at that age which may be most suitable, having regard to the position in life and surroundings of the individual. The Ministry of Health is helping an educative propaganda by means of films, posters, and advertisements, by a subsidy to the National Council for Combating Venereal Diseases; but these measures alone are not enough. Every member of our profession should be prepared, whenever opportunity may offer, to speak in public or to give a lecture to as many persons as possible, pointing out what these diseases mean to the individual, to the community, and to posterity. If it be widely known among all sections what the mischief done by these diseases is, it will, as day follows night, diminish the number of risks of infection taken, and therefore, of course, the number of cases of disease. It may be urged that in so doing you are simply invoking fear to promote your ends; but if I were driving along a road and came to a danger board on top of a hill, unless I were drunk—and this analogy is very apt—I should not

go down that hill at forty miles an hour, but slow up and negotiate the hairpin corner at the bottom with discretion. I should not call that fear, but simply a wise appreciation of the consequences which would follow an act of folly.

With regard to cure, those who have had the greatest and most recent experience in the treatment of these diseases are agreed that if only afflicted persons can be induced to come for treatment at the earliest possible moment, and that if the disease be at once accurately diagnosed and the appropriate treatment applied on the spot, this will do much more to eradicate the illness than any prophylaxis or early treatment possible. It is therefore up to every member of our profession to see that he or she is competent to make this early diagnosis at once, and himself apply the appropriate treatment. There is no doubt that where practice is by contract there is a great temptation to take the line of least resistance and send all cases of these illnesses straight to the hospital or clinic; and in some cases it may be to the professional interests of the doctor to do so, as until the public be really educated, and know that many times these diseases are contracted without entailing any stigma of immorality, some people might object to consult one who lays himself out to treat them, fearing that their friends and neighbours might consider that they themselves were infected. This, however, is only a matter of education, and must soon disappear as enlightenment proceeds. It is absurd to expect that a labourer in a rural district can or will give up a day to tramp many miles to a clinic for the necessary treatment two or three times a week. The opportunity for treatment must be brought to him in his own surroundings and given at the hands of his own doctor; and to ensure this it is essential that proper inducements be given to the practitioner to give this treatment both early and efficiently, thus making the general practitioners of the country the first line of defence.

In conclusion, it is to be hoped that those members of the profession who are divided into two camps with regard to the use of packets should agree to differ, if differ they still must, in private. One of the most impressive speeches at the late Sanitary Congress at Newcastle was made by Mr. Sherwood, a gentleman who is in close touch with some 280,000 workmen and trade unionists in the north-east of England, and he said that the working men had got so confused by the discussions and differences among members of the profession as to prophylaxis and early treatment that they had come to the conclusion that the medical profession knew nothing whatever about these diseases, and that they therefore preferred to follow the advice and take the treatment of their own quacks and herbalists. The disastrous result of such a procedure as this must be apparent to everyone.—I am, etc.,

London, W., Sept. 8th. E. B. TURNER.

*** A summary of the Note to which Mr. Turner refers is given at p. 349.

NEURASTHENIA AND ANXIETY NEUROSIS.

SIR,—It is regrettable in the very highest degree that the reactionary views regarding neurasthenia and its treatment which Sir William Hale-White delivered before the South Midland Branch of the British Medical Association, and which appeared in your issue of August 23rd, should have met with such wide publicity, for they are entirely contradictory to the views which now are accepted by almost all of those who have been brought into closest contact with functional nervous diseases during the war, and are, indeed, certain to have a very adverse effect on all to whom the facts are unknown, and will lead to the improper treatment of such cases.

In the first place, Sir William-Hale White confuses anxiety neurosis with neurasthenia—two entirely different conditions, each characterized by its own clearly defined syndrome.

In the second place, he recommends that the patient suffering from anxiety neurosis (which he speaks of as neurasthenia) should be urged to repress his war experiences and to "turn his mind from the past." Seeing that experience has taught that treatment must be along exactly opposite lines—namely, that the patient must be led to think about, and especially to talk about, his war experiences and to work off the emotion connected with them, it is lamentable that anyone should give such wrongful advice, and especially that it should be given by anyone with the authority of Sir William Hale-White.—I am, etc.,

Golders Green, N.W., Aug. 27th. H. E. DAVISON, M.D.

LOCAL CLINICAL LABORATORIES.

SIR,—The letters by Drs. Hugh Miller and A. G. Shera and by "Bacteriologist" in your issues of August 16th and 30th draw attention to a problem which must be faced by the Ministry of Health if the population in rural areas is to receive the medical service to which it is entitled. As I have for several years been in charge of a small laboratory doing, I fancy, much the kind of work referred to by your correspondents, the following notes may be of some interest.

In 1911 the County Council of Dumfriesshire instituted a laboratory for the use of its Public Health Department and the doctors practising within its area. The laboratory serves a population of, roughly, 64,000, spread over an area of about 1,000 square miles, and including six small burghs, one general and four isolation hospitals. It is supported by public health funds, the authorities other than the county council which take advantage of its facilities paying an annual sum, but no charge being made to practitioners or patients for any work done. When first organized it was suggested that we would be mainly concerned with diphtheria, tuberculosis, enterica, and a certain amount of milk and water bacteriology. The work, however, rapidly developed, and I soon realized that the need for a laboratory in a rural district was greater than I had imagined, and that I had to meet calls of very varying kinds. To-day the laboratory undertakes all bacteriological, microscopic, and chemical work required by the general practitioners and school medical officers, all tests required under the venereal diseases regulations, general public health work—for example, examination of water, sewage, etc,—examination of milk samples sent in by the county veterinary inspector, as well as reports on anthrax, sheep scab, parasitic mange, etc., for the county police. Occasional specimens are submitted by veterinary practitioners, while odds and ends, ranging from a dead salmon to a razor strop suspected by its owner of having given him impetigo, relieve the monotony of routine investigation.

Eight years' experience of this work has convinced me absolutely of the truth of "Bacteriologist's" view—that personal association of general practitioner, laboratory specialist, and patient is of primary importance. The fact that one is personally acquainted with the practitioner sending a specimen, can ring up on the telephone to discuss the case, and can, if necessary, visit the patient, is of inestimable value in guiding one's investigations. This is, perhaps, specially true in regard to Wassermann tests, T.A.B. agglutinations, and malaria. I am certain that had the samples from this area to be sent to a laboratory in one of the large towns, the number examined would be materially smaller, and the loss of time entailed would reduce the value of the reports still more.

In regard to public health bacteriology, there can be no question of the advantage of the "local" over the "central" laboratory. Apart from the value of discussion on daily problems between medical officer of health and bacteriologist, the local laboratory receives the earliest possible intimation of suspected infectious disease; such matters as, for instance, the detection and control of diphtheria carriers can be undertaken efficiently and economically only by a bacteriologist working on the spot, while in dealing with cerebro-spinal fever, suspected food poisoning, and a host of other matters his rôle is equally important. I need not labour the point.

On the other hand, in a scheme of efficient local laboratory service such as, one trusts, may eventually be developed the large central laboratories must play a very important part. The excellent work done by the Oxford Standard Laboratory in preparing standard antigens for enterica and dysentery agglutinations indicates one line of activity. I suggest that the Ministry of Health should arrange that certain large laboratories attached to teaching schools, and directed by pathologists of established reputation, should have affiliated to them all local laboratories within a certain area.

In Scotland—which is geographically well designed for administrative purposes—one or at most two such central

institutions would probably suffice. Inspectors or, to use a term less suspect, consultants appointed by the Ministry would have to be in constant touch with both local and central laboratories. Under such a scheme the pathologist in a country area could at once obtain from his "parent laboratory" all necessary antigens, agglutinating and haemolytic serums, standard living cultures of known pedigree, small quantities of special and rarely used mediums, etc.; would have the satisfaction of knowing that all such material was prepared and tested by skilled pathologists; and, further, would realize that, as precisely similar material was being used by his colleagues in other districts, his results were so far comparable with theirs.

To the central laboratory, again, could be submitted investigations requiring much time, special methods, or apparatus not at the disposal of the local pathologist, and —though this applies more particularly, perhaps, to hygienic than clinical work—the establishing and revising of standard methods for routine work might also be one of its functions.

Some such scheme, based on (1) constant personal co-operation between local pathologist, practitioners, and Public Health Department, and (2) co-operation between the local pathologist and the central laboratory which acts as his consultative and supply base would, I submit, enable us to evolve a really efficient laboratory service. *Inter alia* it would ameliorate a disadvantage under which the local pathologist at present labours, and which only those who have experienced it can estimate—the deadening effect of being out of touch with other workers in his own line, of losing the atmosphere of research which pervades the laboratory of a teaching school, and, above all, of lacking the suggestions and criticisms of colleagues, often more valuable than a shelf of textbooks. Given the association with the parent laboratory which I have suggested, this loss could, in great measure, be supplied.—I am, etc.,

Dumfries, Sept. 1st. JOHN RITCHIE.

SIR,—It is to be earnestly hoped that the correspondence on this subject in your issues of August 16th and 30th will receive the serious consideration of the Ministry of Health. It can scarcely be disputed that it would be in the best interests of the public if proper facilities were afforded to practitioners (especially to those in small towns and the country) for the collaboration, in person if necessary, of a pathologist. It could be reasonably expected also that the practitioner would welcome the additional assistance in making and confirming his diagnoses, and of treating suitable cases with laboratory products. With the introduction of the scientific element the doctor might even take more interest in his cases, and with this object he should be treated as an active partner in the business.

I am in entire agreement with the various contributors to the JOURNAL as to the urgent need for such a scheme, and particularly as to the necessity, emphasized so much by "Bacteriologist," for the personal association of the practitioner and the pathologist. My late colleague frequently discussed this very question with me, and with an experience of 20,000 or more cases we had ample opportunity for forming an opinion as to its value. The pathologist, when acquainted with the salient features of a case, is often able to make useful suggestions as to the nature of the specimen which should be taken, and the examination which should be carried out, with a considerable saving of the time which might otherwise be spent in fruitless search. The obvious advantage of being able to secure specimens as fresh as possible and properly obtained and prepared needs no comment. I have often received samples from long distances badly made or spoiled in transit, and of no value whatsoever.

Lastly, a wealth of clinical material would be available for original investigation. Many of the mild infectious fevers, for example, rarely go into a hospital, and it would be possible to examine early cases and "contacts"—probably an important factor in searching for the cause of these diseases.

As it is now, I believe, three months or more since the Insurance Commissioners raised the question as to the desirability of establishing such clinical laboratories, I feel sure that many pathologists, like myself, would be glad to know whether any substantial progress has been made in the matter.—I am, etc.,

Sutton, Surrey, Sept. 4th. J. W. CROPPER.

PLAGUE RATS ON SHIPBOARD.

SIR,—On page 276 of your issue of August 30th, 1919, I notice a statement in connexion with plague on ss. *Nankin:*

"The most probable explanation seems to be that infected rats got aboard either in the Port of London or that of Marseilles."

In my opinion it is improbable in the extreme that infected rats got on board in London or Marseilles.

A suggestion for such drastic emendation of the note in the JOURNAL requires explanation. The following facts which have come under my observation are in aid:

1. A ship came from Bombay to Middlesbrough, discharged freight there, and came to London. This ship landed plague rats in London.
2. A ship went from India to Wellington, N.Z., and after discharge in Wellington returned to Bombay. She had cases of human plague on board when nearing India on the return voyage.
3. A ship went from Bombay to Sydney; she discharged in Sydney, and just after arrival again in Bombay had human plague on board.
4. A ship came from Bombay to Middlesbrough, where she discharged cargo; from Middlesbrough to London, where she loaded cargo; on the return voyage to Bombay she had plague on board.
5. A ship went from Alexandria to Montreal and discharged cargo in Montreal. On arrival in Bristol from Montreal she had cases of plague on board.
6. A ship went from Calcutta to Buenos Aires, was fumigated in Buenos Aires *with cargo in situ*, and came to London. While lying in London she had plague on board.
7. Ss. *Nankin* came from India to London, discharged cargo, and on the return voyage to India had plague on board.

What is common to all the cases mentioned is that the ships came from endemic centres of plague in the East to non-infected ports. If London supplied the *Nankin* with infected rats, then Wellington, Sydney, Middlesbrough, Montreal, and Buenos Aires supplied infected rats to their respective plague ships, which is a remote proposition as compared with the following suggestions.

When plague rats board a ship with the cargo at an endemic centre, plague may reach the ship's complement either during the voyage to the port of discharge, or during the stay of the ship in that port, or during the outward voyage of the ship from that port; very often it does not reach the ship's complement at all.

The pestis is driven to the surface—that is, from the hold to the deck—on discharge of the cargo and consequent disturbance of the infected hold-rats. This disturbance of cargo will take place at a port of discharge or on such interference as the futile attempt to disinfest a ship with the cargo *in situ*. The disturbed hold-rats infect pantry, food store, and other deck-rat communities on board. This infection of the surface-rat communities and the further passage of infection to man often takes a sufficient time for the ship to have left the port of discharge and reloading where the disturbance of the infection has taken place. This port of discharge and reloading then wrongly incurs the odium of the infection which has been acquired abroad.

I may add that though search has been conducted steadily both for mortality amongst rats and for infected rats in the port sanitary district, neither mortality nor infected rats have been found for a long period.

I have only dealt with cases parallel to that of the *Nankin*. There is a mass of other evidence—indeed, the whole record of the course of plague on ships, which is counter to the suggestion quoted.—I am, etc.,

W. M. WILLOUGHBY,

Greenwich, Sept. 4th. Medical Officer of Health Port of London.

A POST-GRADUATE SCHOOL FOR LONDON.

SIR,—In his essay upon the education of graduates, published in your issue of August 30th, Sir Andrew Macphail says:

Teaching is the most precious of all gifts, and medicine without that aid perishes in all its branches. There is nothing more pitiable than the performance of a teacher who lacks the spirit.

There are in the world at any time very few teachers; for a teacher is an artist who transmutes, or mints, and sets in circulation the ore which the scientist discovers, although in the rarest instances he himself may be artist and scientist too.

Quite so. How, then, are we to discover these teachers? Graduate and undergraduate teaching do differ and must differ widely in many respects. We can allow the student to choose his teachers only within very narrow limits;

and as to what he will study he has practically no choice at all. This must be so, for, whatever other purpose may be served by undergraduate teaching, the State requires that a certain minimum of knowledge of a number of specified subjects shall be imparted to each and every student. Such uniform instruction can only be given in highly organized schools, and it is not practicable to choose all the professors and lecturers solely for their teaching ability. In fact, it is well recognized that in any given school particular subjects are badly taught, though the teachers of them may be eminent men.

But graduate teaching is quite a different matter. It is, or should be, essentially eclectic. The students are men in actual practice, conscious of special and personal needs, seeking each to get the instruction which suits his particular case. A doctor in the Colonies, for example, has read the writings of some particular man, and wishes to be taught by him. But this man may not be attached to any large medical school; and in the past he has been debarred from teaching.

Now, for the first time, the Fellowship of Medicine, of which Mr. Philip Franklin is the secretary, has broken down these barriers. Their motto has been, "Men, not schools," and in that lies the secret of their success. By providing for a series of lectures at the house of the Royal Society of Medicine, they enabled those seeking instruction to, as it were, sample the men who offered it. Whatever his scientific reputation, unless the lecturer could convince his hearers of his ability to *teach*, few cared subsequently to follow him to his hospital clinic. On the other hand, the man who seemed to have something worth saying and who knew how to say it, was sure of a flux of students, no matter whether the hospital he worked at had 50 beds or 500.

The Fellowship of Medicine, in short, has provided a centre where all those who think they have a message can deliver it; and where those seeking knowledge may hear and choose their teachers. This is a democracy of learning in the truest sense, and in harmony with what is best in the spirit of the times.—I am, etc.,

London, W., Sept. 6th. F. HERNAMAN-JOHNSON.

THE ASYLUM MEDICAL SERVICE.

SIR,—Your correspondent "12 Bore" might, while conveying the same matter, have still further abbreviated his short but excellently self-revealing letter, had he merely written thus: I am a person without any ideal of duty and without energy or ambition other than is contained within the idea of self-indulgence.

It is true that many of us had to engage assistants of the type of "12 Bore" during the war, and, owing to the exigencies of national conditions, staff of all kinds in mental hospitals, as in other institutions, had to suffer similar deterioration; this was, however, to our sorrow, not to our satisfaction.

The fact of the matter is that the medical service of mental institutions, like all other whole-time services of a like nature, has certain disadvantages compensated by certain advantages. Inasmuch as the medical staff of these services has not the stimulus, present in general practice, which provides a direct relationship between pay and work done, the type and amount of work done by any medical officer is a direct reflection of the character that he possesses.

Assistant medical officers of the type of "12 Bore" are a curse to this or any service, and it is the existence of this type that has made many committees of mental hospitals quite clear that the security of tenure of office of a mere idler is a mistake which must be remedied.—I am, etc.,

August 31st. MEDICAL SUPERINTENDENT.

SIR,—"12 Bore's" mischievous letter calls for an immediate reply, even though he writes in a facetious spirit, as indicated by his putting "the impossibility of marriage" amongst the "advantages" of asylum life.

If the grievances of the asylum A.M.O. are a "hardy annual," it is only proof that the grounds of discontent hold a sound root that strives to find a place in the sun.

"12 Bore" would appear to be a man of leisure, who is content to do the minimum routine in return for an easy life, but having been a locum in one asylum can hardly qualify him to express an opinion on the asylum service.

I have been in four asylums, have always had night calls, and never been in a position to enjoy shooting or fishing close by. My salary began at £150, and is now, after seven years, £300 per annum. Is this what he calls good pay?

The work has its unpleasant aspect, and for that very reason should be adequately rewarded, but to call it uninteresting shows merely a lack of interest in modern methods of diagnosis and treatment.

I should be surprised to hear that "12 Bore" had ever examined the spinal fluid of an insane patient with a view to clinching a diagnosis or giving a reliable prognosis to the patient's anxious relatives.—I am, etc.,

August 30th. ASYLUM A.M.O.

REMUNERATION FOR 1920.

SIR,—Dr. Evans's letter in your issue of August 30th is of interest: it is undoubtedly true that the reports of Panel Committees would lead one to think that they fail to realize the gravity of our position. Dr. Evans must, however, take into consideration the fact that, until the terms of our contract for 1920 (apart from the remuneration) are known, it is extremely difficult to arrive at a definite sum which would be a just equivalent for our services. Had the conditions of service remained unaltered, it would be easier to secure a satisfactory basis for our demands, and I am certain that Panel Committees would ere this have given expression to their opinions on the subject. I regret that Dr. Evans did not state what he would consider a suitable capitation fee, but I surmise that he too is hampered by this ignorance on our part of the conditions of service for 1920.

It would, however, be well for us first of all to obtain a clear understanding as to what, with the present decreased value of money, our demands for 1920 would require to be were the conditions of service to remain unchanged. Dr. Evans quotes the Leader of the House as having said that "the increase should be 250 per cent." in order to bring a salary up to its pre-war equivalent. But that goes very far beyond his argument that money has depreciated at least 50 per cent. We have, however, a definite actuarial calculation to go upon: the actuarial estimate of the average increase of wages since 1914 among the insured labouring classes is 133 per cent. This, I submit, is a fair increase for us also, who have, unlike the civil servants, no pension to look forward to.

Let it then be clearly understood that *our capitation fee for 1919 should have been not less than 17s. 6d. to bring it up to the 1914 standard.* Once that is definitely grasped and insisted upon by the profession it will be easier for our representatives to arrive at an agreement as to the sum which we must demand in view of the extended conditions of service for 1920.—I am, etc.,

Largo, Fife, Aug. 31st. WM. EGGELING.

SIR,—The capitation fee for the work which is going on, and which has been going on since service under the Insurance Acts began, was before the war 7s. per insured person per annum. The war has, however, caused the £1 to fall in value, until to-day the fall has reached 11s. 3d., making the £1 to be only valued at 8s. 9d. Therefore 16s. to-day is equivalent in value to 7s. in 1912, and to this must be added 6d.—equivalent value 2½d.—for invalided soldiers, making 16s. 6d. The capitation fee, therefore, to-day must be 16s. 6d. to equal the capitation fee of 7s. in 1912, *plus* the damage to insured men caused by the war.

It is interesting to note that the increase in wages paid to the labouring classes since 1912 is about 133 per cent.

With regard to the capitation fee for invalided soldiers—namely, 2½d. (equivalent value 6d.)—this matter requires to be investigated, for it is probably due to the fact that large numbers of doctors may for various causes have failed to send in accounts.—I am, etc.,

Stalybridge, Sept. 7th. ADAM FOX, L.R.C.P., L.R.C.S.Ed.

ANTIVIVISECTION SHOPS.

SIR,—One of the antivivisection societies lately opened a shop for three weeks in Oxford, and will probably open it elsewhere, moving it from place to place. There were many of these shops in the years before the war, and I shall be grateful if anybody in whose neighbourhood the

shop appears will immediately let me know of it, so that arrangements may be made for the distribution of leaflets to counteract its influences.—I am, etc.,

STEPHEN PAGET,
Honorary Secretary, Research Defence Society.

11, Chandos Street, Cavendish Square, London, W.1,
September 8th.

TERRITORIAL MEDICAL OFFICERS' DINNER.

SIR,—As it is not possible to send notices to individual officers I shall be obliged if you will allow me to announce in the BRITISH MEDICAL JOURNAL that the dinner of the Territorial Force Medical Officers' Association will take place on Thursday, October 30th, at 7.30 p.m. at the Holborn Restaurant. The charge for tickets (wine not included) is 12s. 6d.

All Territorial officers can attend and bring guests. Application for tickets should be made to me at 37, Russell Square, London, W.C.1.

September 8th. D. L. HAMILTON, Lieut.-Colonel.

SUDDEN DEATH UNDER AN ANAESTHETIC.

SIR,—I am sorry to say that I have not been so fortunate as Sir R. H. Woods in that I have lost a case under an anaesthetic, and moreover under ether by the open method. Twice previously I had administered an anaesthetic to the child, in each case ether by the open method. At the third operation, which was carried out to complete a radical cure for extroversion of the bladder, the operation being carried out in stages, the child suddenly ceased to breathe, although I had ceased to give her ether and was allowing her to come round, as the surgeon had finished his work. Despite restoratives, artificial breathing, direct insufflation, and heart massage, she never recovered.

At the *post-mortem* examination the findings were consistent with the condition known as status lymphaticus—namely, persistent thymus, fatty changes in the myocardium, and a general overgrowth of the lymphoid tissue; and I may say that I saw the *post-mortem* examination myself, so am satisfied that the findings were not the fevered imaginings of a pathologist anxious to screen the delinquencies of a professional brother. Perhaps some advocate of the virtues of chloroform will now come forward and state that status lymphaticus is also a euphemism for ether poisoning.

Advocates of the substitution of ether for chloroform as a general anaesthetic will not welcome such sweeping and quite unproven statements as these made by Sir R. H. Woods in his letter of August 16th as being likely to help them much in their campaign.—I am, etc.,

H. PINTO LEITE,
Honorary Anaesthetist London Throat Hospital, National Dental Hospital, Evelina Hospital for Sick Children, etc.

London, W., Aug. 26th.

MEDICAL DEMOBILIZATION.

SIR,—Is it not time that steps were being taken to release temporary medical officers in Mesopotamia who are now threatened with being kept out there till April, 1920?

Most of them have been in that country at least two years without one day's leave, and the only leave spoken of is leave to India, which they cannot now afford. Compare this with the medical officers in France who had leave every six months at least, also medical officers from France are being demobilized who have less service than the former.

Take the position of those who are married. They have not seen their homes for over two years. Their pay is now barely sufficient to keep themselves and a home in England owing to the rise in value of the rupee, the high cost of living at home, and the fact that the purchasing value of the rupee in Mesopotamia has not altered. Surely the term "national emergency" cannot now hold when peace is signed, and did not mean looking after Indian and Arab coolies who are engaged on (?) military work, as they are now doing. Cannot medical officers from France junior in service, or recent graduates, be called on (as promised) and sent out to replace them? Ought these men not to have preference over young medical officers who have fewer responsibilities and only a few months' more service?—I am, etc.,

September 5th. A. B.

R.A.M.C. CONTRACTS.

SIR,—The editorial in the JOURNAL of August 2nd, p. 144, referring to the new contract of service in the R.A.M.C. is timely, and fairly adequately expresses the attitude of non-regular officers still serving. Unquestionably the prime factor influencing men who have served against the new contract is a distrust of the War Office, begotten of service under it. It would be well if consultation with the Association as to the terms of service by the army medical authorities preceded the issue of any further contract.

It is doubtful whether any new voluntary contract will be attractive unless:

(*a*) Clinical ability in the various specialist branches is recognized as a ground for considerable increase in pay over the flat rate of remuneration.

(*b*) A serious effort is made, by enabling men to serve in their "home" area, to make army service less of a blind alley.

(*c*) Preferential treatment of regular officers in matters of appointments carrying extra pay, leave, living out, and decorations is abolished.

My personal experience has been that extra duty pay as operating surgeon during 1917 worked out at 1¾d. per operation; that I have been away from home for nearly five years; that nine decorations have been awarded to my five commanding officers, while my bosom remains unadorned; and that it is ten months since I had any leave.—I am, etc.,

NEARLY FIVE YEARS OF IT.

⁂ The new terms and conditions announced this week by the War Office are given at page 355.

Obituary.

CHARLES ARTHUR MERCIER, M.D.LOND., F.R.C.P., F.R.C.S.,

Consulting Physician for Mental Diseases, Charing Cross Hospital; Past President of the Medico-Psychological Association.

WITH deep regret we have to record the death at Bournemouth, on September 2nd, of Dr. Charles Mercier, whose brilliant intellectual gifts adorned the profession of medicine. For many years past Dr. Mercier's health had been very bad, but his indomitable spirit rose above all physical disabilities. Although for long an invalid his mental powers remained unimpaired, and his wit shone as brightly as ever.

Charles Arthur Mercier was born in 1852. His father, the Rev. L. P. Mercier, was of Huguenot descent; at his death the family was left in straitened circumstances. After a few years at Merchant Taylors' School, Charles Mercier went to sea as a cabin boy, and worked for a time as warehouseman and clerk in the city before beginning the study of medicine at the London Hospital, where he had a brilliant student career. He obtained the M.R.C.S. diploma in 1874, and four years later the F.R.C.S. and the M.B. degree of the University of of London. In 1896 he became a Member of the Royal College of Physicians, and in 1904 was elected Fellow. He proceeded to the M.D. degree in the following year, winning the University gold medal for special distinction in mental science. His practical knowledge of insanity began during his tenure of the post of medical officer first to the Bucks County Asylum, near Aylesbury, and later to the City of London Asylum. Dr. Mercier was for many years resident physician to a private asylum near London, and became lecturer on insanity first in the Westminster Hospital Medical School and subsequently at Charing Cross Hospital, to which he was appointed physician for mental diseases. He was for long a member of the Council of the Medico-Psychological Association of Great Britain and Ireland, of which he was sometime president. He was examiner in mental diseases in the University of London, and at the annual meeting of the British Medical Association at Oxford, in 1904, he was president of the Section of Psychiatry. He was a member of the Departmental Committee on the Treatment of Inebriety and contributed largely to the report. He also gave expert evidence before the Royal Commission on the Care and Control of the Feeble-minded, representing the Royal College of Physicians of London.

The legal side of mental disease made a strong appeal to

Dr. Mercier's acute and subtle intellect, and for many years he took a close interest in the work of the Medico-Legal Society. In 1909 the Royal College of Physicians awarded him the quinquennial Swiney Prize, for the best work on jurisprudence, for his book on *Criminal Responsibility in the Insane*, and this honour was again conferred upon him this year in recognition of his work on *Crime and Criminals*. His other published works on lunacy and its legal and social relationships were: *Sanity and Insanity*, *The Nervous System and the Mind*, *Lunacy and Law for Medical Men*, *Psychology Normal and Morbid*, *A Textbook of Insanity* (now in its second edition), *Crime and Insanity*, and *Conduct and its Disorders*; the last a book which has not yet produced its full effect. In 1913 he delivered the FitzPatrick lectures on "Astrology in Medicine," and about the same time appeared his striking essay *A New Logic*. It was written with all his accustomed vigour, but it failed to convince his old enemies the formal logicians. Nor indeed did he expect that it would, though to it and to his writings on conduct he himself probably attached most importance. Two years ago he published *Causation, with a Chapter on Belief*, a piece of most original work, clear and sparkling. In *Spiritualism and Sir Oliver Lodge* he drew an astonishingly able parallel between the evidence for spiritualism and the evidence for witchcraft. One of his last published works was a little book, *Spirit Experiences*, mocking the absurdities of the cult of spiritualism, of which a burlesque review appeared in a recent number of the JOURNAL. Dialectics fascinated him; he was ready to join issue on any and every subject, and with anybody. Sometimes, indeed, "he also argued round about him." In our columns for many years his controversial letters were the delight of countless readers and as often as not the despair of those who crossed swords with him. Occasionally, too, he could be induced to contribute to our editorial columns; but he was a wayward contributor and would not write unless the subject happened to take his fancy. All that he wrote was lucid, trenchant, and precise.

We are indebted to Sir BRYAN DONKIN for the following appreciation:

Dr. Mercier—Psychologist, Physician, Logician.

It would be hard for any one who had the privilege of knowing Dr. Mercier as intimately and as long as I have to write an adequate and just account of his scientific and literary work, and also of his character as a man, within the necessary limits of a weekly journal. But to refuse the opportunity of paying a slight tribute to his memory was impossible, though I feel I must confine myself chiefly to an appreciation of his personality and ability and of the general character of the abundant work he achieved, and dwell only for a moment on the contents of his psychological and other treatises, which will be his main, but not his sole, title to a lasting reputation.

I began to know Mercier from a correspondence that occurred between us in the early eighties on a coincidental similarity of ideas expressed in some articles written by him and myself to different medical publications. Shortly afterwards he was appointed, on the recommendation of Sir James Crichton-Browne, as medical superintendent to a private asylum near London, where he remained for many years until, owing to ill health, he was forced to resign. It was there that the disease (osteitis deformans) set in from which he suffered severely until his death. During this period of nearly forty years he and I maintained a friendship unbroken by many disputations. Unless actually incapacitated by pain or other intercurrent ailments which from time to time confined him to bed, he never ceased working at his professional duties or devoting himself at all spare times to his scientific and literary pursuits. From first to last his mental powers never failed him, and even during the last few years, when he had become wellnigh deaf and blind, in addition to his almost complete incapacity for moving about, his memory, even for recently acquired knowledge, was but little impaired.

He was, as is well known, vigorous and trenchant in controversy, and this caused some who knew him slightly and more who knew him not at all, to look on him as a fighter merely for fighting's sake. There was, perhaps, some little excuse for this misconception. He doubtless enjoyed, more than most men, the actual glory of mental conflict, and, when not otherwise deeply engaged in original work, he often seized on opportunities to crush what he deemed to be important errors of fact or thought. He certainly did not suffer superficial thinkers gladly. But no rancour or personal animus ever marked his attitude to those with whom he fought, however strong the literary expression of his criticisms might be. In all his publications or speeches, controversial or otherwise, he was straight, courageous, clear, and logical, and but rarely allowed himself to be led astray by his exuberant joy of battle, or to write either in attack or defence without due consideration of the subject in hand. There are several men with whom, to my knowledge, he fought strenuously, sometimes on the losing side, with all his available weapons on certain biological and philosophical questions, between whom and himself there remained a mutual and warm regard until the end.

Quite apart from his well-known works on psychology, conduct, logic, causation, and others treating of his special subject of insanity in all its bearings, all of which are of the highest degree of importance and value, especially to every serious student of mental disorder, his two books, entitled *Criminal Responsibility* and *Crime and Criminals*—both winners of the Swiney Prize in 1909 and 1919 respectively—are rightly regarded by authorities on both those subjects as of high scientific and practical value. And his truly remarkable versatility and rare literary craftmanship are illustrated in his small volume named *Temperaments*, which from their style and matter give him a place by the side of our best modern essayists. I can mention no more of his smaller works than his recent book on *Spiritualism and Sir Oliver Lodge*, which is an excellent example of his strict adherence to the true scientific method of attacking a subject and the irresistible force of his logical argument.

With regard to Dr. Mercier's philosophical opinions and the biological views that more or less underlie some, and especially the earlier, of his writings, it must be borne in mind that he assimilated very early the doctrines of Herbert Spencer and the personal teaching of Hughlings Jackson. His leanings towards a free use of the deductive method in his scientific writings, as well as towards the so-called "Lamarckian" doctrine of evolution, as particularly set forth by Spencer, may be thus accounted for. But it should be noted that there are several signs in his later writings that he had considerably, if not altogether, changed his opinions on some questions of biological evolution, and that, in spite of the use he made of deduction in the process of his reasonings, he was but very rarely chargeable with forsaking the scientific method by omission to seek, by means of further observations, fresh verification of his conclusions before adopting them. But this interesting aspect of Dr. Mercier's work cannot be further considered here. Suffice it to say that the somewhat obscure dictum, in a recent obituary notice of Dr. Mercier, that "the quality of his mind might best be styled forensic and analytic" seems to me to be gravely misleading, as far as it is intelligible. Dr. Mercier's "forensic" or debating power was certainly forceful, but he was none the less pre-eminently a searcher after truth; and whatever the word "analytic" may mean in this context, his philosophical trend of thought would, I take it, be far more appropriately described as "synthetic."

Mercier's literary "style" was almost unique in the purity of its English and its freedom from such peculiarities of phrase or word as mark the writings of most of our best-accredited authors. He had been taught but little Latin and no Greek, but was acquainted more intimately and widely with the best examples of English writers of prose than many professors of the literary craft. Hence it came about that for all the purity and clarity that doubtless raises him as a prose writer above the immense majority of his medical contemporaries and places him highly in the ranks of all other writers of the day, he never penned anything in a literary style that could possibly be named after him.

Sir WILLIAM OSLER writes:

May I bring the tribute of a few words to the memory of Dr. Mercier? Though not of Oxford, and a sharp critic of her methods, the university had a great fascination for him, and of late years he not infrequently would spend a few days at the Randolph seeing old friends. It was a rare treat to have him dine in Hall and afterwards in Common Room start a discussion on the need of reform

in our methods of education. He had very clear and sound views, and argued with great ability upon the uselessness of logic as at present taught. He delighted to shock the classical don by unmeasured abuse of Aristotle, whose methods, he claimed, had done irreparable damage to the human mind. With a rich vocabulary and a keen wit, he had no equal among us as a conversationalist. He was best with a few friends after dinner, with enough port, as he would say, to quiet his gout. When last with me, a few months ago, he was in fine form—I never saw such a triumph of mind over matter—and entertained us with stories of his student days and anecdotes of Hughlings Jackson and Jonathan Hutchinson. Maitre François must have been a man of this type, and Mercier's trick of tongue was racial. Controversy he loved, and, strange to say, it brought him friends; despite the caustic pen he had a warm, generous heart. The courage with which he bore his many infirmities is a lesson to us all. Never complaining, he worked on to the end, and went down, as he promised, "with all the flags flying." We shall miss the brilliant critic of our ways and words.

ALEXANDER MACALISTER, M.A., M.D., LL.D., D.Sc., F.R.S.,

Professor of Anatomy, University of Cambridge.

WE regret to record the death, at Cambridge, after a long illness, of Professor Alexander Macalister, who had held the chair of anatomy in the University of Cambridge for the past thirty-six years. Alexander Macalister was born in Dublin in 1844, and received his education at Trinity College, Dublin. He obtained the qualifications of the Irish Royal Colleges in 1861, and the M.B. degree at Trinity College ten years later, proceeding M.D. in 1876. After holding a demonstratorship of anatomy at the Royal College of Surgeons in Ireland he was appointed in 1869 professor of zoology in the University of Dublin, and eight years later he was elected to the chair of anatomy and chirurgery. On the retirement of Sir George Murray Humphry in 1883 from the chair of anatomy in the University of Cambridge, Professor Macalister was appointed to fill his place, and was elected to a professorial fellowship at St. John's College. In the following year he took the M.A. and M.D. degrees at Cambridge. Professor Macalister was a member of the senate of Dublin University, and received the degee of D.Sc. *honoris causa* in 1892. The Universities of Edinburgh, Glasgow, and McGill University, Montreal, also conferred on him the honorary degree of LL.D. He was a Fellow of the Royal Society, and served on the Council in 1894 and 1895. Professor Macalister was the author of an *Introduction to Animal Morphology* published in 1876, the *Morphology of Vertebrate Animals* (1878), and a *Textbook of Human Anatomy* (1889); he contributed many papers upon animal morphology and human anatomy to scientific journals, and a number of small textbooks for students of zoology and physiology. While the study and teaching of anatomy formed his life-work, Professor Macalister had many other interests. He was an ardent Egyptologist, a student of church history, and one of the mainstays of the Presbyterian community at Cambridge. His kindly nature endeared him to many generations of Cambridge medical students.

Professor E. BARCLAY-SMITH sends us the following appreciation:

Within the short space of ten years British anatomy has suffered grievous loss. Turner, Cunningham, Young, Patterson, and Buchanan have passed away, Thane and Symington have vacated their chairs, and now Macalister—the most learned and scholarly of all—has gone.

When in 1883 Humphry forsook anatomy to devote himself exclusively to surgery, it was chiefly through his farseeing influence that Macalister was invited to fill the chair of anatomy at Cambridge, No choice could have been wiser. The great triumvirate—Paget, Humphry, and Michael Foster—had laid the foundations of what was to prove the largest and most flourishing medical school in England. For this success no small share is due to Macalister. He literally threw himself into the work with the utmost zeal and enthusiasm; for thirty-six years his energy and devotion to the Anatomical School have never flagged.

Macalister's young days saw anatomy slowly emerging from a purely descriptive and mechanical study into a living science. Comparative anatomy, embryology, genetics, and the study of variations were all helping to lift the study of man on to a new morphological plane. In this movement Macalister was a pioneer. Endowed with a marvellous memory, a most comprehensive knowledge of zoology, and a wonderfully well-balanced judgment, he early recognised that fundamental biological principles could be culled from dry anatomical facts.

No pen could do adequate justice to Macalister's knowledge of anatomy. To state that it was stupendous and encyclopaedic is no exaggeration. Although he impressed one as being familiar with everything that had ever been written on the subject, his was no mere book knowledge, but was largely gleaned from the body itself. He seemed to live in the dissecting-room. His technique was marvellous, and no one could approach him in facility and neatness as a dissector. The many beautiful models and preparations which adorn the Anatomical Museum at Cambridge testify to his superb skill as a craftsman.

Macalister was trammelled by no convention. His lectures were unique, and although the fledgeling student might occasionally feel almost suffocated by the flood of unexpected facts which came pouring forth, yet his power of exposition was so wonderful, his diction so graceful, his descriptions so lucid, that, if bewildered, the student could not fail to be charmed.

To me Macalister always seemed old beyond his years; old in learning and ripe judgment, but ever young in sympathy and kindliness of heart. Reverenced and beloved by students and staff alike, his great knowledge was at the service of all. No detail was too small, no trouble too great, but he met it with the most sympathetic and active help. Of late years Macalister's contributions to anatomical literature have been few, but his monograph on muscular anomalies and his textbook of anatomy are monuments of learning, originality, and industry, and will keep his memory green for all time.

WILLIAM ANGUS, M.D., CH.B.ABERD., D.P.H.CAMB.,

Medical Officer of Health, City of Leeds.

DR. WILLIAM ANGUS died on August 23rd, at the age of 35. A native of the city of Aberdeen, he was educated at the Grammar School and University of that city. After a distinguished student career he graduated M.B. and Ch.B. in 1907, and M.D. in 1909, being awarded honours for his thesis. He went to London immediately after qualifying, and held resident appointments at the Chelsea Infirmary, Great Northern Central Hospital, St. Pancras Infirmary, and the Hospital for Sick Children, Great Ormond Street. From the first he had a leaning towards preventive medicine. After a course of study at University College, London, he took the Diploma in Public Health at Cambridge in 1910. After sixteen months as Assistant M.O.H. of the County of Hereford he transferred to Ipswich, and in 1913 he went to Leeds as Assistant M.O.H. and Chief Sanitary Inspector. During the illness of Dr. Cameron, the Medical Officer of Health, Dr. Angus carried on the work until June, 1915, when he was appointed Acting M.O.H., and in February, 1917, he was appointed Medical Officer of Health for the city. He believed that as a young and fit man his place during the war was in the army. The serious illness of his chief, and the heavy and responsible duties which fell to his lot in consequence, prevented his hopes being realized. In 1917, however, he was able to make satisfactory arrangements to carry on the public health work of the city, and he received a commission in the R.A.M.C. He went to Egypt, where he was at once appointed A.D.M.S. (Sanitation), 1st Echelon, with the rank of lieutenant-colonel. He threw himself wholeheartedly into this work, and drew up a valuable report on malaria.

Dr. Angus was demobilized in February last, and resumed his duties in Leeds. In every department of his work he had keen interest, but most of all in maternity and child welfare. The Leeds scheme, for which he was responsible, is held to be a model to others. He possessed in an unusual degree the faculty of putting his thoughts into clear and simple language, and was able to put his schemes for the public good before a lay committee in a form that ensured their adoption. The same gift made him a clear lecturer and a sound teacher.

In August he went with his family to St. Cyrus, near Montrose, for a much-needed holiday, and while there

contracted septic tonsillitis, followed by septicaemia, which proved fatal. An athlete in his youth, he had always enjoyed the best of health, and the news of his sudden death came as a great shock to his friends. He endeared himself to all with whom he came in contact. He was singularly quiet and unassuming, and abhorred anything that savoured of advertisement. His sound knowledge and painstaking work gained him the confidence of those he served, while his kindness, courtesy, and sense of justice and fair play gained him the respect of his subordinates.

A colleague writes: Our profession and the community generally are the poorer for the death of William Angus. A man of sterling and transparent honesty and high purpose, he combined in a remarkable degree the qualities of the idealist and the man of action. The possessor of great executive ability and sound common sense, he impressed all with whom he came in contact by his breadth of vision and power of grasping the essentials of a situation. He was a man of few words, but those well chosen, cogent, and to the point. His clarity of expression is well exemplified in his admirable report, just published, on malaria in the Egyptian Expeditionary Force during 1918, a document of high scientific and historical importance. Of the quality of Angus's professional work it is impossible to speak too highly. All of it was done with energy and enthusiasm, and he would tackle the biggest and most difficult problems with the keenest possible zest and determination. In the academic sphere—as professor of public health in the University of Leeds—he was equally successful. He enjoyed to the full the confidence of his colleagues, and one felt that, in these days of change and reconstruction, Angus, the steady, wise, and clear-visioned, was the right man in the right place. Personally, William Angus was a most lovable man and a delightful companion, and it was undoubtedly in his home life, as husband and father, that he showed at his best. His death leaves a gap in the circle of his friends which it will be impossible to fill. To his wife and two little daughters goes out at this time the heartfelt sympathy of all their friends.

M. J. S.

WILLIAM SOLTAU ECCLES, M.R.C.S.ENG.

AT the age of 76 there died on September 9th, at Upper Norwood, another member of an old medical family, W. Soltau Eccles. He was the son of the late John Henry Eccles, M.R.C.S., of Plymouth. He entered St. Bartholomew's Hospital in the sixties, was house-surgeon to the late Sir James Paget, and afterwards surgeon to the G.I.P. Railway in Bombay. Retiring from this post, he settled in practice in Upper Norwood, where he was succeeded by his younger son Dr. Annesley Eccles, his elder son Lieut.-Colonel W. McAdam Eccles being now Surgeon to St. Bartholomew's Hospital. Mr. Soltau Eccles was the first to use ipecacuanha in the treatment of dysentery, and while professor of hygiene in the Grant Medical College, Bombay, he was much interested in the treatment of tetanus by oxygen.

H.M.S. *Glowworm* was blown up accidentally on the Dvina river, North Russia, on August 27th, when three officers and eighteen men were killed, and a large number wounded. Among the former was Surgeon Lieutenant RICHARD MORTIMER ROWLAND THURSFIELD, R.N. He was educated at St. Bartholomew's Hospital, and at Cambridge, where he graduated as M.B. and B.C. in 1911, having previously taken the M.R.C.S. and L.R.C.P.Lond. in 1909. After filling the post of house-physician of Chesterfield Hospital, he entered the navy as surgeon on April 3rd, 1912.

A CASUALTY list published on August 25th contained the name of Lieutenant GEORGE HILTON MIDDLETON, R.A.M.C. (S.R.), killed in action, presumably on the Indian frontier, as most of the names in the list were those of Indian officers. He was educated at Edinburgh University, where he graduated as M.B. and Ch.B. in 1918, and took a commission as lieutenant in the Special Reserve of the R.A.M.C. on October 24th, 1918.

Medical News.

THE annual general meeting of the Medical Defence Union will be held in the Board Room of the Public Medical Service, East Bond Street, Leicester, on Thursday, September 18th, at 4 p.m. Medical practitioners who are not members of the Union are cordially invited by the council to attend this meeting. Those who intend to be present are asked to send their names to Dr. E. Lewis Lilley, 86, New Walk, Leicester.

DR. IDRIS D. EVANS of Cardiff has been appointed a medical assessor on the Pensions Appeal Tribunal.

THE old students' dinner of St. Thomas's Hospital will be held on Wednesday, October 1st, at 7.30 p.m. in the Connaught Rooms, Great Queen Street, W.C.2, with Sir George Makins, G.C.M.G., in the chair.

THE honorary staff of the Manchester Royal Infirmary will give a series of post-graduation lectures and demonstrations each Tuesday throughout the coming educational year, beginning on October 7th.

THE old students' dinner of St. Bartholomew's Hospital will be held at Princes Restaurant on Tuesday, September 30th, at 7.30 p.m., with Dr. W. S. A. Griffith in the chair. The honorary secretary is Sir C. Gordon Watson, 82, Harley Street.

THE lecture advertised for Monday, September 15th, in connexion with Mr. A. J. Walton's course in surgical dyspepsia at the London Hospital Medical College, will be held on the following Wednesday, September 17th, at the usual hour—namely, 4.30 p.m.

A COURSE of lectures for prospective tuberculosis officers, general practitioners, and others, will be given in the Tuberculosis Department of the Royal Institute of Public Health during October, November, and December, on Thursdays at 5 p.m. Particulars can be obtained from the Secretaries, 37, Russell Square, W.C.1.

As we were able to announce a fortnight ago, the Fellowship of Medicine has decided to continue the emergency course it instituted in London last spring. It has arranged with the medical schools in London and other hospitals for an emergency post-graduation course of three months for qualified medical officers from the R.N., R.A.M.C., and R.A.F., from the Dominions and the United States and Allies. The dates and details are published each week in the *Bulletin* of the Fellowship, and full particulars can be obtained on application to the Secretary to the Fellowship, 1, Wimpole Street, London, W. 1. The special lectures at the house of the Royal Society of Medicine will be resumed on September 15th at noon.

THREE post-graduation courses in tuberculosis will be given in Paris during the coming academic year under the direction of Drs. Bernard, Bezançon, Calmette, Kuss, Letulle, Rist, Sergent, and Teissier. The courses will be of six weeks' duration, commencing on October 20th, 1919, April 15th and June 15th, 1920. They will be essentially practical in nature and will include pathology, bacteriology, physical diagnosis, *x* ray, laryngology, social welfare and dispensary administration. An opportunity will be given to work each morning in a dispensary or hospital under the guidance of the physicians. The course will be open to graduates in medicine who are citizens of France, allied and neutral countries. The Commission for the Prevention of Tuberculosis in France will grant subventions to a limited number of French physicians. Further details of the course may be obtained from Dr. E. Rist, 5 rue de Magdebourg, Paris.

THE nineteenth congress of the French Urological Association will be held in Paris on October 8th and following days. The question proposed for discussion is the treatment of non-tuberculous pyelo-nephritis in men. The Secretary-General is M. O. Pasteau, 13 avenue de Villars, Paris vii^{e}.

THE International Conference of Women Physicians, which is due to open in New York on Monday next, September 15th, will be attended by Dr. Mary Gordon (London) and Dr. Frances Stores Johnston (Edinburgh) from the United Kingdom. The conference will continue until October 25th.

DR. CHARLES ARTHUR OWEN OWENS, V.D., of Long Stratton, and Dr. Legge Paulley, of Pulham Market, have been placed on the Commission of the Peace for the county of Norfolk.

THE legislature of New Jersey has passed a bill making a medical certificate compulsory before marriage can be contracted in the State.

THE Medical Research Committee during the war issued a *Medical Supplement* to the Review of the Foreign Press by the General Staff of the War Office. This Supplement, which was found to be of considerable service, especially to medical men serving abroad, was discontinued last April. It is now being revived in somewhat different form, under the title of *Medical Science, Abstracts and Reviews*, and will be published monthly, commencing in October, at the price of 2s. per volume. The subjects comprised will be surgery, medicine, pathology and bacteriology, neurology, and radiology.

THE third interallied conference for the study of questions relating to war invalids will be held in Rome in October (12th to 17th). The programme includes artificial apparatus for crippled men; physical and functional re-education; help for the blind, deaf, and tuberculous; international legislation for war invalids, material and economic organizations (benefit societies, co-operative production, etc.), and pensions. An exposition of prosthesis will be held in connexion with the conference.

THE annual meeting of the British Association for the Advancement or Science, interrupted for two years by the war, began at Bournemouth on Tuesday of this week and ends on Saturday. The presidential address by Sir Charles Parsons, as well as several of the opening papers by the sectional presidents, dealt largely with the part played by scientific workers during the war. The evolution of sound-locating instruments for the detection of submarines and of the position of enemy guns, directional wireless apparatus, and the development of our imperial resources in the past as well as in the future, were subjects touched upon by Sir Charles Parsons. Professor D. Noël Paton in the Physiological Section, in introducing his paper on "An aspect of protein metabolism," said that the research worker must not only have the overpowering desire for knowledge and the keen zest in its pursuit, but he must also have that coldly critical spirit enabling him to know if he was pursuing a reality or a phantasy. Professor A. D. Waller in the same section demonstrated a method of measuring emotional response by the movements of a light spot on a scale. Professor Arthur Keith in the Section of Anthropology introduced the idea that the endocrine glands, especially the pituitary, are the principal agents in determining the various racial characteristics.

AT a meeting of the executive committee of the Medical Sickness and Assurance Society held on August 15th, when Dr. F. J. Allan was in the chair, it was reported that influenza had practically disappeared from the claims made. The new business continued to be large, but it was reported, on the other hand, that an increasing number of medical men were retiring from practice at a comparatively early age, a feature that had not been met with before; if it continued it would be necessary to obtain increased new business to maintain the membership. The claims were under the expectation for the month, but signs were not wanting that the strain on the older members during the last few years was beginning to show in nervous breakdowns, etc., necessitating long rest from all work. The society's sickness contract provides for payment for years if necessary, whereas under many policies the benefits only last a certain time. Over £310,000 has been paid in sickness claims since 1884. All particulars may be had from the Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.1.

DURING 1918, 1,805 cases underwent antirabic treatment at the Pasteur Institute in Paris. Of these 5 died of hydrophobia, a mortality of 0.27 per cent. One of these 5 showed signs of hydrophobia during treatment, whilst another failed to attend regularly; the remaining 3 developed symptoms after the course of treatment, in one case as long as four months afterwards. All cases treated at the institute are put into three categories according as the biting animal is experimentally proved to have been rabid, verified as rabid after veterinary examination, or only suspected of rabies. Only one of the fatal cases belonged to this last category. From England there came 18 cases for treatment; none of these developed hydrophobia. In the last thirty years, out of 32,817 cases treated, the total mortality has been 92, or 0.28 per cent.

THE Housing Department of the Ministry of Health has issued standard specifications for cottages drafted so as to cover various alternatives, and therefore adaptable to suit the particular circumstances of each scheme.

THE Medical School of Washington University has received a donation of £1,000 to be used in the investigation of hypertrichiasis. The research will be chiefly in the fields of anthropology and heredity.

A PERMANENT board for the control of venereal diseases has recently been established in Spain by royal decree. It will study all the measures proposed by the Spanish Antivenereal League and report to the Government on the steps to be taken for combating these diseases. Dr. Martin Salazam, director of public health, has stated that it is proposed to create institutions after the English model for prompt diagnosis and treatment. Among the members of the board are several of the leading members of the medical profession, besides representatives of all classes of society in Spain.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

J. M. W. asks for information as to literature dealing with advanced thought elaborated from the general tenets of Darwin's *Descent of Man*. Modern theories are sought after as to the place in evolution of such structures as the appendix and the mammary gland in man.

HYPERIDROSIS.

"SUDOR" asks if any reader can suggest treatment for a patient (male), 30 years, in apparently perfect health, who suffers from excessive sweating (bilateral) of face and scalp on the slightest exertion, and even when at rest. Our correspondent has tried all the usual remedies—belladonna in full doses, etc.—but nothing seems to do any good.

INCOME TAX.

"QUAIN" has, from August 1st, given up general practice work and has taken a research appointment at £450 per annum; what is his position with regard to the three years' average?

*** (*a*) As from August 1st he ceases to be liable on the average profits of past years—notwithstanding the fact that fees for past work may still be received—and is liable on the emoluments of his present work, according to the amount accruing for the year of assessment; for example, taking the average profits for 1916, 1917, and 1918 to be £1,100, his liability for the year to April 5th, 1920, would be four-twelfths of £1,100=£367, plus eight-twelfths of £450=£300; total, £667. (*b*) It would appear that "Quain" probably has a title to repayment of tax for 1918–19 owing to the fall in profits due to employment of a locum for six months. Under Sec. 29 of the Finance Act of 1916, where the *total* actual income of a taxpayer is less by more than 10 per cent. than his assessed income, he is entitled to such repayment as will reduce the total tax paid to the tax on the total actual income. We suggest that "Quain" should write to the surveyor of taxes and ask for a copy of the form of claim used in appeals under Sec. 29 of the Finance Act, 1916.

LETTERS, NOTES, ETC.

WAR HONOURS.

"PERMANENT R.N.V.R." writes: I wonder if the profession is aware of the scurvy way the permanent R.N.V.R. doctors have been treated by the Admiralty in the matter of war honours? As a pre-war organization we were mobilized at one hour's notice and taken right away from our practices without any chance of even arranging for locums, mostly to the ruination of such practices. And the great majority of us have served away from our homes until peace arrived. *We* were not among the many fortunate medical war workers who were able to combine private practice with war duties. At the beginning of the war we were hailed by the authorities with honeyed words as "having saved the situation for the

R.N. Medical Service by being already trained," as "being *the* type of war doctor so urgently needed—that is, men of the wide experience of general practice, or physicians and surgeons on the honorary staff of large hospitals who would be used as consultants," etc. Omitting any consideration of pre-war service, it is interesting to know what the Navy really thinks of our war services as judged by a study of the honours lists. Apparently they class us as a crowd of "dud turns," for the highest honour awarded to any permanent R.N.V.R. doctor is the second grade from the bottom of the prolific Order of the British Empire. Do the Admiralty really expect any self-respecting doctor to remain in the R.N.V.R. when their long services have been held to be of such small account? We are sore, and very sore, particularly when we read of the K.C.B.s, K.C.M.G.s, C.B.s, and C.M.G.s given so freely to our Army counterpart, the R.A.M.C.(T.F.).

"ICONOCLAST" writes: With reference to the letter of "Fair Play" (August 23rd, p. 260), surely this bickering about what medals and how many is rather beneath the dignity of members of a learned profession. The only thing that seems to me to matter is what each man's own conscience makes him feel, and if we feel we have done our duty we do not need a row of medal ribbons to remind us of it. Nor can I believe that the said row of ribbons or medals will make a man's children respect him if they have not other more first-hand knowledge of his worth. True, my daughter loves to be told a story in the evening about "Mesopotamia," but I am sure she would think just as much about it if I substituted "Manchester" with the same accent on the name. And if I get a special medal for going to Mesopotamia I shall not forget that I was moved from a job where I was doing some good work to one for which I was thoroughly unfitted. As to the rank of captain against that of major or even lieutenant-colonel, will it make for increased respect, or will it bring one in higher fees? I am speaking, of course, of "temporary officers," as it is different with the regulars whose pay depends on it. The only occasion I can conceive on which an extra medal or two would be of any value would be if we donned our uniform again to mix with a gathering of regular officers. And then we would find we had to console ourselves for our shortcomings by remembering that if we had chosen the career of regulars, we also might have had our extra pips and crowns at the same age, and our rows of O.B.E.'s, C.M.G.'s, and D.S.O.'s. What I say is: "Thank God the war is over, and instead of trying to hang on to our martial glory let us forget it as quickly as possible." But let us try to make sure that in the future there will be no need for questions of "fair play," or for Mons medals and 1914–15 stars, or even for the use of such terms as "volunteer," "Derby man," or "conscript." I mean let us medical, and therefore educated, men—and especially those of us who have been "through it"—see if we cannot preach the doctrine of national service, so that when we have our next war there will be real fair play. Every medical man is a person of influence, and without any trade union or any organization at all each one of us could do a little. That would be something to talk to our sons about; and although they will not bother much about what happened in this war, they will appreciate it when their turn comes for the next effort.

JUNIOR PRACTITIONERS AND THE R.A.M.C.

"F. Y. S." writes: There are few newly qualified men available for the R.A.M.C. for the following reasons:

(1) The men who became medical students in 1914, and would normally qualify this year (*a*) joined the army as combatants in 1915 and have lost at least a year, (*b*) joined the navy as surgeon sublieutenants and have lost at least six months, (*c*) got qualified under the War Regulations of the Conjoint Board in 1918—nine months before normal and joined before the armistice.

(2) Those of us who by reason of (*a*) and (*b*) above, or by reason of age, could not qualify in 1918, are advised, now the war necessity has apparently passed, to work for higher examinations, such as the primary F.R.C.S., and not to consider ourselves qualified till we have passed the M.B., which for those who started in October, 1914, cannot be till March, 1920.

(3) Demobilized surgeon sublieutenants are still bound to the navy. In March, 1918, service as surgeon sublieutenant became obligatory. Many men who qualify in the year October, 1919—October, 1920, will therefore be obliged to serve in the navy if required, and if they are not required it naturally follows that they are not obliged to serve in the R.A.M.C.

MOTOR SPIRIT REBATE.

"G. H. S." writes: I think many of your readers will agree that members of the medical profession have a just grievance in that motor spirit rebate is only allowed to them on that spirit purchased and consumed within a period of six months anterior to the date of making claim. One cannot always be referring to dates of purchase and of previous claims, and I, for one, am being constantly left with a balance on which my claim is disallowed. Surely if the spirit is legitimately used in the performance of one's medical duties the rebate claim should be allowed irrespective of the date of purchase of the spirit. I should be glad of your opinion and that of other readers in this matter.

WARTS ON THE FACE.

DR. R. H. OULTON (Boston Spa) writes: In the correspondence on "Warts on the Face" I have seen no mention of the application of castor oil. For sixteen years I have prescribed ol. ricini for soft multiple warts on the face, a little to be rubbed on the warts frequently. They disappear invariably in less than three weeks, leaving no mark of any kind. The Kaffir uses the oil freshly squeezed from the bean. I do not know if it acts any quicker. The only point I find necessary in its use is not to tell the patient what he is using—until he is cured, at any rate—as he will be sceptical and not rub it in diligently.

MOVING PICTURES IN MEDICAL TEACHING.

THE applicability of the cinema as an instrument of medical education is being tested in various countries. As an example may be mentioned a film lesson in anatomy given in America. A skeleton was taken to pieces on the screen and the various parts demonstrated; it was then reconstructed. Operations by well known surgeons are being recorded by cinema photographers, and will be used in medical schools for practical instruction. In France a "film library of medicine" has been formed for teaching purposes. Films are to be taken of all important operations. To prevent abuse the films will be subject to a special censorship.

SCAVENGING AND BIOLOGY.

THE *Journal des Praticiens* is responsible for a story that a doctor who has already won considerable distinction as a biologist has applied to the Paris Hôtel de Ville for a job as a street sweeper. His pension on retirement from army service is insufficient for him to provide a livelihood, therefore he is prepared to sweep the streets till mid-day; in the afternoon he will return to his laboratory.

A SIAMESE MEDICAL JOURNAL.

WE have received Part I of the first volume of the *Medical Journal of the Siamese Red Cross*, published at the Chulalongkorn Memorial Hospital, Bangkok. The patron is the Prince of Pitsanuloke, chairman of the committee of the Red Cross. The honorary editor is the Prince of Chinart, Director-General of the University Department. The editorial committee consists of Dr. Léopold Robert, director of the Pasteur Institute, Dr. H. Campbell Highet, Minister of Local Government and ophthalmic surgeon to the hospital, Commander Mom Chow Thavara, M.R.C.S., L.R.C.P., and Major Hluang Sakda Bholaraksha, M.R.C.S., L.R.C.P., director of the hospital. Dr. Highet contributes a paper on the treatment of trachoma by carbonic snow; Major Bholaraksha writes on the treatment of concussion aphasia by general anaesthesia; Dr. Robert discusses the symptom of itching in human rabies; Dr. R. W. Mendelson of the Local Sanitary Department writes on the spirochaetal infection of ulcers; and G. Coedès, conservator of the National Library, describes public medical assistance in the twelfth century from Sanskrit inscriptions found in Camboge. The journal is printed in native characters, and translations of the papers are given in English and French.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 38, 39, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 35, 36, and 37.

THE Home Secretary gives notice that, in consequence of the resignation of Dr. J. L. Russell, one of the medical referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 12, the appointment held by him is vacant. Applications for the post should reach the Private Secretary, Home Office, Whitehall, not later than September 25th.

THE Chief Inspector of Factories announces the following vacant appointments: Brigg (Lincoln), Belper (Derby), Birmingham East, Dartford (Kent), Erdington (Warwick), Hailsham (Sussex), Hanley (Stafford), Ulceby (Lincoln).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.